Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
April 2016	Technical report	

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Review of Dr. Zecevic expert opinion report conclusions regarding the causes and results of the explosion occurred at Kapiia square in the city of Tuzla on 25/05/1995	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)	
Sharon Joseph	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION REPORT NUMBER
Temech-Consultants Tal-el 2516700 Israel	32-16

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

see report

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	169	

QUALIFICATIONS

SHARON JOSEPH

Tel: 972-4-9562192

Fax: 972-4-9563772

Email: temech@netvision.net.il

Site: http:// temech-consultants.co.il

EDUCATION:

1. Netanya College, Israel (L.L.B)-Lawyer –Special experience- criminal and damage aspects of explosives and explosions.

PROFESSIONAL COURSES:

1.	2010	Advanced explosives course.
2.	2008-2009	Engineering statics and material strength course- Technion.
3.	2003	Advance expert witness course.
4.	1991-1992	Practical engineering Chemical course- Technion.
5.	1990	Explosion & Explosives technician course- Israel Ministry of Labor.
6.	1985	Fireworks technician course- Israel Ministry of Labor.
7.	1977-1992	Special professional courses for Israeli police bomb squad and laboratory members, including: I.M.I explosives technician course, I.D.F Bomb disposal unit- Advanced ammunition recognition course. Professional courses for laboratory crew such as:

Photography, evidence collection techniques, Pathology, advance courses of explosive recognition, chemistry and behavior, Electronics courses, scene evaluation etc.

8. 1995 High rank police officers Command & Staff course.

9. 1989 Advanced Police officers course.

10. 1982 Police officers course.

11. 1981 Israeli police bomb squad laboratory course.

12. 1977 Israeli police bomb squad course.

EXPERIENCE:

1. 1999-present-
Owner -Temech consultants-expert opinion to court- explosion, explosives, ammunition, pyrotechnics, fireworks.
Investigations in Israel & abroad

2. 1992-1995-

police bomb squad unit commander- main professions-
dismantling I.E.D, management of explosion sites
including gas/fuel explosion sites.

3. 1983-1991
commander of police bomb squad laboratory- investigating hundreds of explosion sites in Israel, Lebanon, Srilanka Etc. including large scale explosion investigations, among them gas/fuel explosions such as I.D.F headquarter In Tyre Lebanon. More than 100 car bomb incidents examinations, Suicide terrorists,incidents, Special investigations of airplanes and ships, explosions Etc.

4. 1981-1982
Crew member in the Central Police Bomb Squad laboratory Jerusalem - investigating hundreds of explosion cases.

5. 1977-1981
Police Bomb squad crew member in the northern district.- dismantling I.E.D & ammunition

Main investigations:

1. 1982- The assassination of the Lebanese president- Bashir Jumail in Beirut.

2. 1983- VBIED explosion in the IDF headquarters in Tyre Lebanon – 60 dead.

3. 1985- VBIED explosion near Metullah .

4. 1986- Air Lanka Tristar explosion Colombo Sri Lanka.

5. 1987- The Gliders Night- an attack on IDF headquarter near Kiryat Shemona by glider

6. 2006- Investigations of rockets impact on buildings, launched during the second Israeli-Lebanese war for the Israeli Property Tax Office.

7. 2010- Investigation of massive fuel explosion abroad.

8. 2012- Investigations of rockets impact on buildings, launched during the Israeli-Gaza conflict for the Israeli Property Tax Office.

SPECIAL ACTIVITIES:

1. 2011- Team E.O.D leader- 750 Acres of U.X.O clearance in Ramat Hovav Israel

Table of Contents

Introduction

On 25/5/1995, an explosion occurred in the Kapija Square in the town of Tuzla in B&H, as part of a civil war in the former Yugoslavia.

As a result of the blast 71 people were killed and 240 people were injured, according to Bosnian reports.
Following this event, an investigation began, as a result of which the commander of the Ozren Tactical Group, Novak Dukić was placed on trial.

The court convicted Mr. Dukić of the charges against him and sentenced him to 25 years in prison. The defendant appealed his conviction and the appeal court reduced his sentence to 20 years in prison. The judgment, which convicted Mr. Dukić was based mostly on the written opinion and the testimony of Dr. Zecevic/

Mr. Dukić wishes to appeal the court's ruling that was based, in his opinion, on incorrect findings in the opinion of Dr. Zecevic.

Given the above, this report examines the findings of Dr. Zecevic, both in the opinion and testimony before the Court.

As mentioned above, the Court based its ruling regarding the defendant's guilt on the opinion of Dr. Zecevic.
In the judgment, excerpts from which, relevant to this report, are quoted in Part B of the introduction, the Court specifies the points in the opinion of Dr. Zecevic that served as the basis for the conviction of Mr. Novak Dukić:

A. Cause of the explosion

B. Direction from which the shell arrived

C. Angle of impact of the shell

The report presented herein addresses the points that formed the basis for the determination of the Court.

The report focuses on neutral and concrete evidence, the examination of which allows for a well-grounded conclusion. This evidence is based on authentic documents, photos and videos for which there are no concerns of bias. Some of these items were supplied by representatives of the defendant translated to English and some compiled from open sources such as the Internet.

Furthermore, two full-scale tests were conducted to examine and analyze several fundamental issues relating to the effect of the explosion and the ballistics of the warhead fragments. These tests used a reconstructed life-size model of Kapija square and were conducted on February 10-11, 2016 at the Nikinci Technical Test Center. A 3D laser scanner scanned the test ground throughout the tests.

The report is divided into five parts:

Part One is more theoretical and contains chapters dealing with the individual analysis of each of the items of evidence and findings specified in Dr. Zecevic's opinion, and which served as the basis for the conviction of the accused. Every chapter is divided into 2 parts: Dr. Zecevic's findings and analysis and a comparison with subjective evidence found in documents and other sources.

Chapter One deals with the characteristics of the impact and explosion of an explosive warhead on any surface, and fragmentation damage caused to the surface itself. In the report this is called the "Ground Fragmentation Spread" of the shell. The "Ground Fragmentation Spread" effect is of utmost importance in determining the direction of the shooting. In addition, analysis of this effect helps determine the angle of impact. The surface on which the explosive warhead exploded has great significance with respect to the dispersion of fragments. It is well known that the harder the surface the greater the amount of ricochets, both of shrapnel from the shell and fragments of the surface itself. This would significantly increase the area and number of casualties that were in the dispersion direction of the "Ground Fragmentation Spread".

This chapter, presents comparative evidence from similar/identical events worldwide, to reinforce the report findings and conclusions.

The last section of this chapter refutes Dr. Zecevic's findings regarding the direction of the shooting. In his opinion Dr. Zecevic bases these findings on evidence in the area that allegedly enabled him to determine the direction of the shooting. This report does so by examining the findings and comparing the test method used by Dr. Zecevic to standard methods used to determine the shooting direction. The findings presented in this chapter indicate that Dr. Zecevic's conclusion regarding the direction of the shooting is biased because it is based on erroneous analysis of the findings and the evidence in the area.

Chapter Two deals with the location of the "Golf" car before the explosion. This is very important because of the different locations that appeared in Dr. Zecevic's report and the actual location as seen in the official reports. The exact location of the car is the basis for accepting or rejecting Dr. Zecevic's report.

Chapter Three is the most significant part of the report and deals with the interface between the Golf vehicle, close to where the explosion occurred, and the explosion crater and its results. The location of the vehicle and the damage to it in relation to the blast center are of utmost importance in determining the direction and angle of the shell explosion.

Chapter Four analyzes the damage to the "Golf" car and Dr. Zecvic's references to the damage.

Chapter Five of this report deals with the victims. A table is presented with each victim's details - serial number, location and damage, and all details are also indicated on a map.

Part Two of the report, that includes chapters six through eight, contains a very detailed description of the first test conducted on February 10, 2016. This test, carried out at the Technical Test Center in Serbia, was prepared according to Dr. Zecevic's expert opinion regarding the location, direction and tilt of a 130 mm OF482M H.E projectile.

Chapter Six describes the test arena in detail, including measurements of the buildings, distances between buildings, building materials and the location of the cars and the human figures.

Chapter Seven describes the after effect of the explosion on the objects.

Chapter Eight presents comparisons between damage to the objects in the test arena and at Kapija square.

Part Three of the report describes the second test conducted on February 11, 2016 at the test arena. This test was carried out due to significant discrepancies between the results of the first test and the effects at Kapija square. The aim of this test was to find a point where the projectile explosion results fit the effects at Kapija square. The projectile tilt and angle changed accordingly.

This part also presents a description of the test explosion results as seen on the various objects in the test arena.

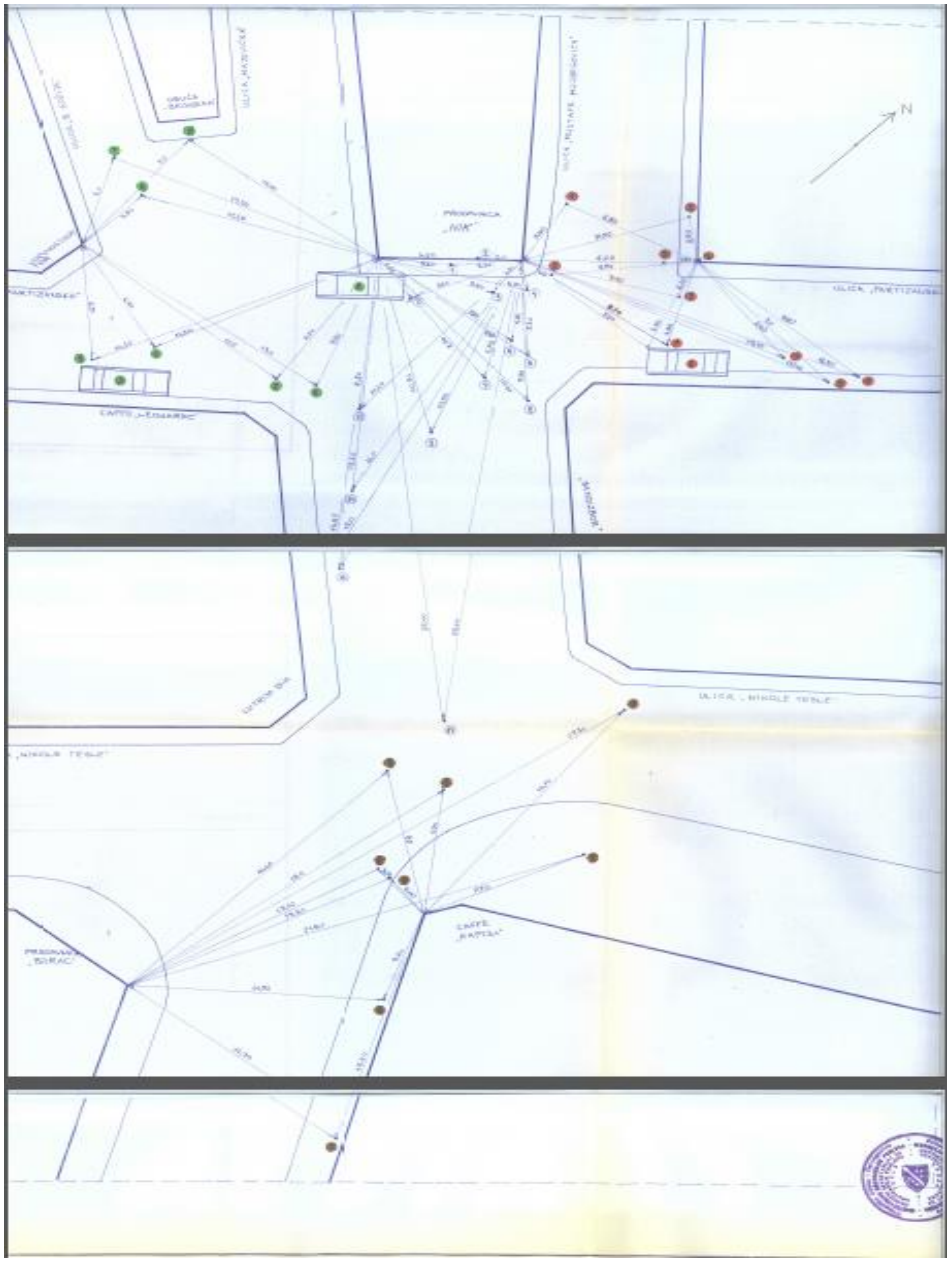
Part Four of the report summarizes the comparisons between the test results, the effects at Kapija square and Dr. Zecevic's theories.

Part Five summarizes the report and highlights contradictions between the report conclusions and those of Dr. Zecevic with respect to the occurrence at Kapija square on May 25, 1995. This raises significant questions and points to problems of consequence. Solving these issues may reveal the real causes and outcomes at Kapija square

Appendix A presents the comparative results of the experiments.

The Scene of the Event

The explosion occurred as stated in the Kapija Square in the town of Tuzla.
The square is enclosed by 8 buildings, 10 m or more in height, most of which rise to a height of two floors, with facades facing the square. These buildings contain Caffes and fashion shops. The length of the square – from east to west is about 35 m.
The width of the square – north to south is about 13 m. 8 streets converge into the square and thereby, in effect, the area of the square itself is increased.
The square is paved with square granite stones sized 10X10X10 cm arranged in semi-circles.
At the time of the event, numerous people celebrated in the square – most of them young people on the occasion of Youth Day. On this day, in addition to the Caffes, mobile sales carts were placed at various locations in the square and its surroundings, which were placed on the sidewalks and the road, adjacent to the sidewalks, and which sold soft drinks and snacks (popcorn), these carts constituted an attraction and around them many people gathered and thereby a number of "multi-casualty centers" were created as a result of the explosion.



Description of Verdict Detailing the Findings of Dr. Zecevic
The main points in the opinion to which the report relates are prominently marked

Direction of the projectile

a) Crater and the explosion site

.

1) Expert witness Berko Zecevic

281. Expert witness Berko Zecevic used as the starting point the exact sketch of the crime scene attached to the Joint Commission Report, that is, the distance of 2.65 and 5.60 meters from the left and the right corner of the building, next to which the projectile exploded. This expert witness found that one part of the Golf vehicle was parked on the pavement. Moreover, to identify more precisely the direction of the projectile, Zecevic marked the points based on which it is possible to define the sketch that eventually results in the conclusion on the direction of the projectile.

He concluded that the projectile left a clear furrow of the projectile fragments inside the granite blocks, which assisted him to identify clearly and easily the direction, but also the first point of cross section.[202] The expert witness pointed out that the surface which received the landing projectile is made of granite blocks which leave the furrow of the projectile fragments, which is specific for this type of surface.[203] Then, he extended the direction at the bottom of the vertical wall of the building in front of which the projectile exploded (marking 2) to the cross section with the previous direction (marking 3).[204] After that, the expert witness identified the distance between point 3 and the edge of the vertical wall (marking 4).[205] To calculate this distance, the expert witness calculated the width of the pavement.[206] Thereupon, the expert witness made the sketch based on which it is possible to identify the direction of the projectile in relation to the geographic north.[207] By the analysis of the sketch, the expert witness concluded that the direction of the projectile was west, specifically azimuth $271^0 \pm 2,5$. [208]

b) Ballistic drop of the projectile

1) Expert witness Berko Zecevic

287. Zecevic noted in his Report that prior to the explosion, the projectile flew over the building and then landed at the surface of granite blocks, immediately next to the side of the Golf vehicle.[214] He pointed out that the assessment of the minimal ballistic drop can be made based on the parameters of the height of the building[215] and its distance from the explosion site. Based on the traces of damage on the front right part of the projectile, the expert witness concluded that the ballistic drop is much higher than the angle defined during the previous considerations. To define the dropping angle more precisely, the expert witness conducted a reconstruction.[216] Based on the information then available to him (explosion site, direction, and the position of the vehicle) he carried out a measurement of the dropping angle of the projectile. The expert witness calculated that the distance between the vehicle and the explosion site was 400 mm, and that one part of the vehicle was on the pavement.

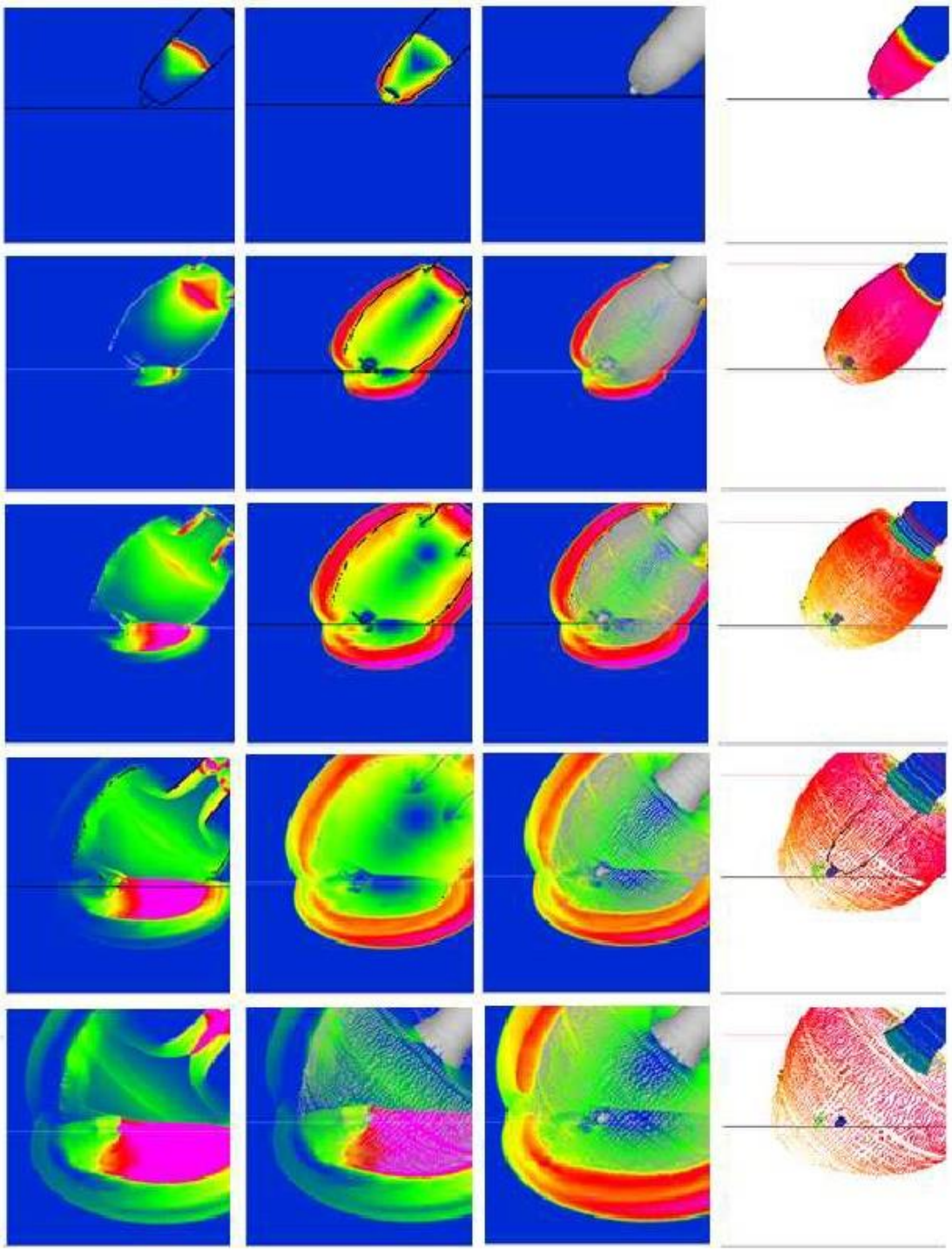
288. On the grounds of this test,[217] the expert witness concluded that based on the shooting range chart for the 130 mm M46 gun the ballistic drop of the HE projectile 130 mm falls within the interval $62^0$0'67^0 and 41'.

Part I – Analysis of Findings at Event Scene

Chapter A – Ground Fragmentation Spread / Determination of the Direction of the Shell According to the "Ground Fragmentation Spread" on the Ground

A. Theoretical explanation for the formation of the centers of the explosion and fragmentation spread on the ground

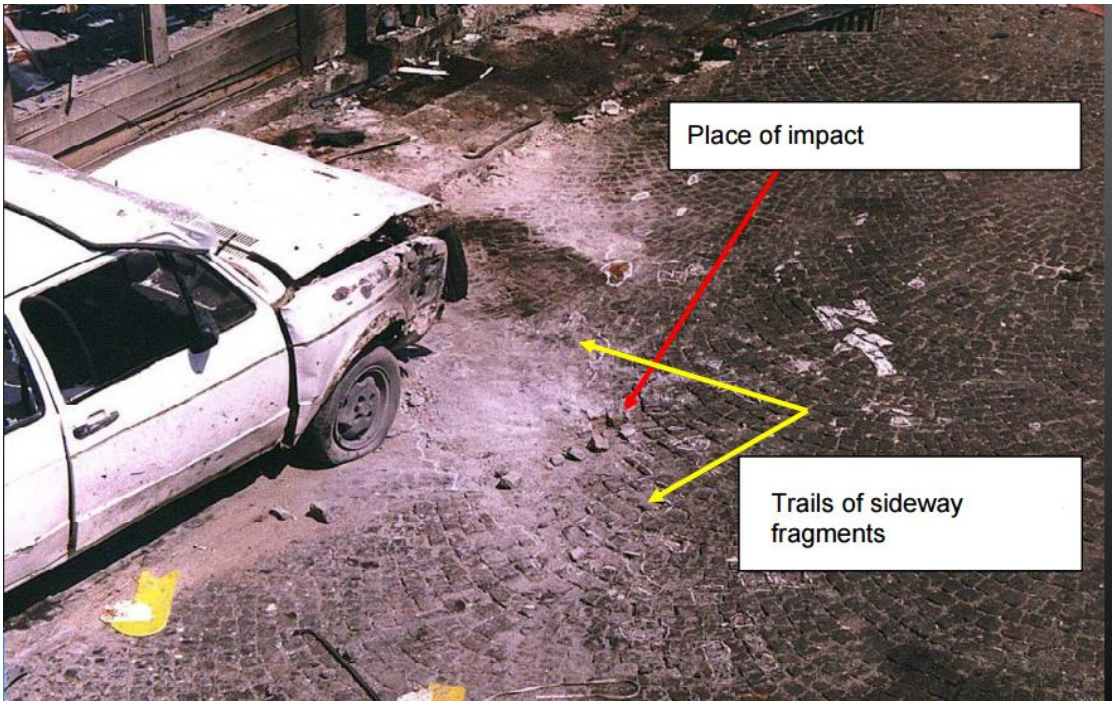
There is no dispute that the shell striking the ground creates fragmentation damage to the ground around the center of the explosion.
In the case of falling at a 90 degree angle to the ground, a uniform peripheral fragmentation will occur around the point of impact the shell on the ground – characteristic of the falling of mortars shells.
Artillery shells, however, strike the ground at different angles, for several reasons: the elevation angle of the cannon's barrel, the distance of the target from the firing point, altitude differences between the firing point and the point of impact and more:
Depending on the shell's angle of impact on the ground and the structure of the shell, the shrapnel from the shell will strike the ground.
Adjacent to the point of impact, the center of the explosion will be created because of the power of impact of the shell's body on the ground prior to its explosion, and due to the proximity of the effect of the blast/brisance of the steel body/volatility of the explosives within the shell, to the ground. The greater the distance from the point of impact, the greater the distance between the ground and the body of the shell and explosive processes occurring therein, so the angle of shrapnel impact on the ground will increase. On the other hand, the amount of shrapnel per unit area will decrease while the damage area will increase. This effect is created on the ground adjacent to the blast center is called "Ground Fragmentation Spread" of the shell.
Various angles of falling/exploding cause fragmentation spreads with structures different from each other.
Both models, the experiments and actual events indicate a single characteristic, clear and exclusive – the Ground Fragmentation Spread of a shell, will always be located in the direction of firing point and constitutes an unequivocal indication of the direction of the firing. The smaller the angle of impact on the ground, so the direction of the fragmentation spread on the ground will be more characterized and diagnosed.
Another factor that has a major impact on the characteristics of the Ground Fragmentation Spread is the type of surface on which the shell exploded.
On soft surfaces such as sand, soil, and so on, the Ground Fragmentation Spread will be deeper due to penetration of shrapnel into the surface, however on hard surfaces such as a granite surface, the Ground Fragmentation Spread will be relatively shallow, because the shrapnel does not penetrates into the surface but ricochets off it.
Impact on a hard surface, such as this, will cause a far greater number of casualties because of the large amount of shrapnel ricocheting from the ground, together with numerous fragments of granite that substantially increase density and quantity per unit area and consequently the injuries to people and the severity of injuries.
However, in the area located at the front of the blast center – further along the axis of the shooting, the quantity of Ground Fragmentation Spread is small in direct relation to the angle of impact on the ground, due to the fact that the vast majority of the shrapnel had been repelled upward.
Thus in fact emerges the indication that allows precise determination concerning the direction of the shooting.
In an experiment conducted as part of preparing this report, the details of which are presented below, three effects of an explosive shell were examined – one – the center of the explosion – its shape, size and direction in reference to the angle of the shell and its direction. The second effect – the Ground Fragmentation Spread and the third - environmental effect of shrapnel in a cross-section of sectors relative to the direction of the shell.

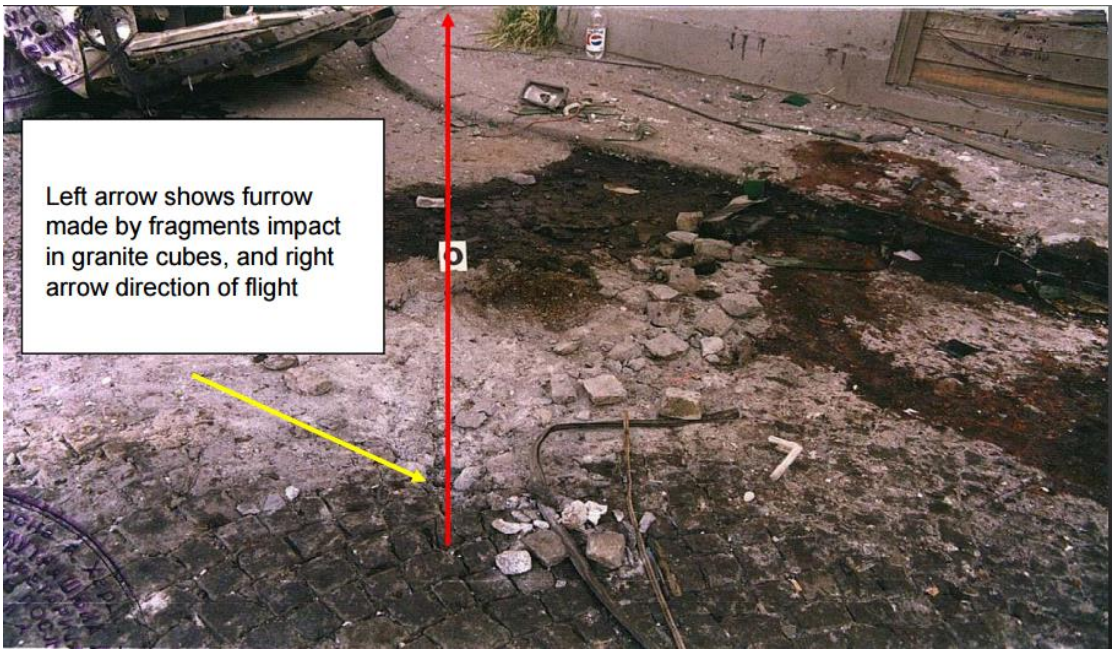


Computerized simulation of the explosion of a shell impacting, describes the explosion pressures and the shrapnel dispersion (right column). The simulation facilitates an understanding of the manner of the formation of center of the explosion on the ground and its characteristics and processes of creating the fragmentation spread on the ground on the one hand, and the shape and peripheral shrapnel dispersion for long distances, on the other hand.

B. Reference of Prof. Zecevic to the Ground Fragmentation Spread

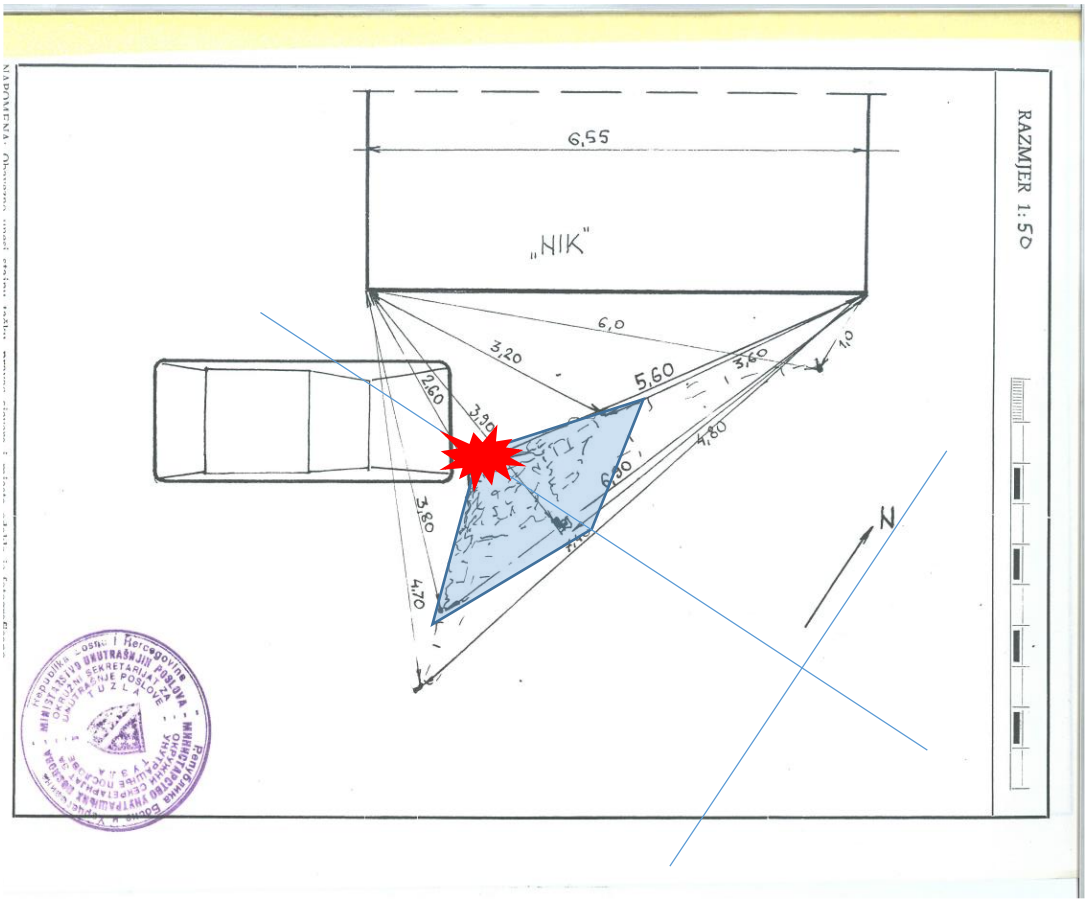
In general not a great deal of attention was devoted by Dr. Zecevic to the Ground Fragmentation Spread, except for noting that on the damaged surface signs of shrapnel were apparent. Dr. Zecevic reinforced this reference with several pictures that in general depict shrapnel, but ignore the general configuration and characteristics of the Ground Fragmentation Spread.





It is fitting to take note of this picture in which there is reference to the fracturing of the centers of the stone surfaces in the East-West direction, in view of which Dr. Zecevic determined the direction of firing.

C. Findings at Tuzla's Kapija square:



Ground Fragmentation Spread as drawn at the scene (marked)

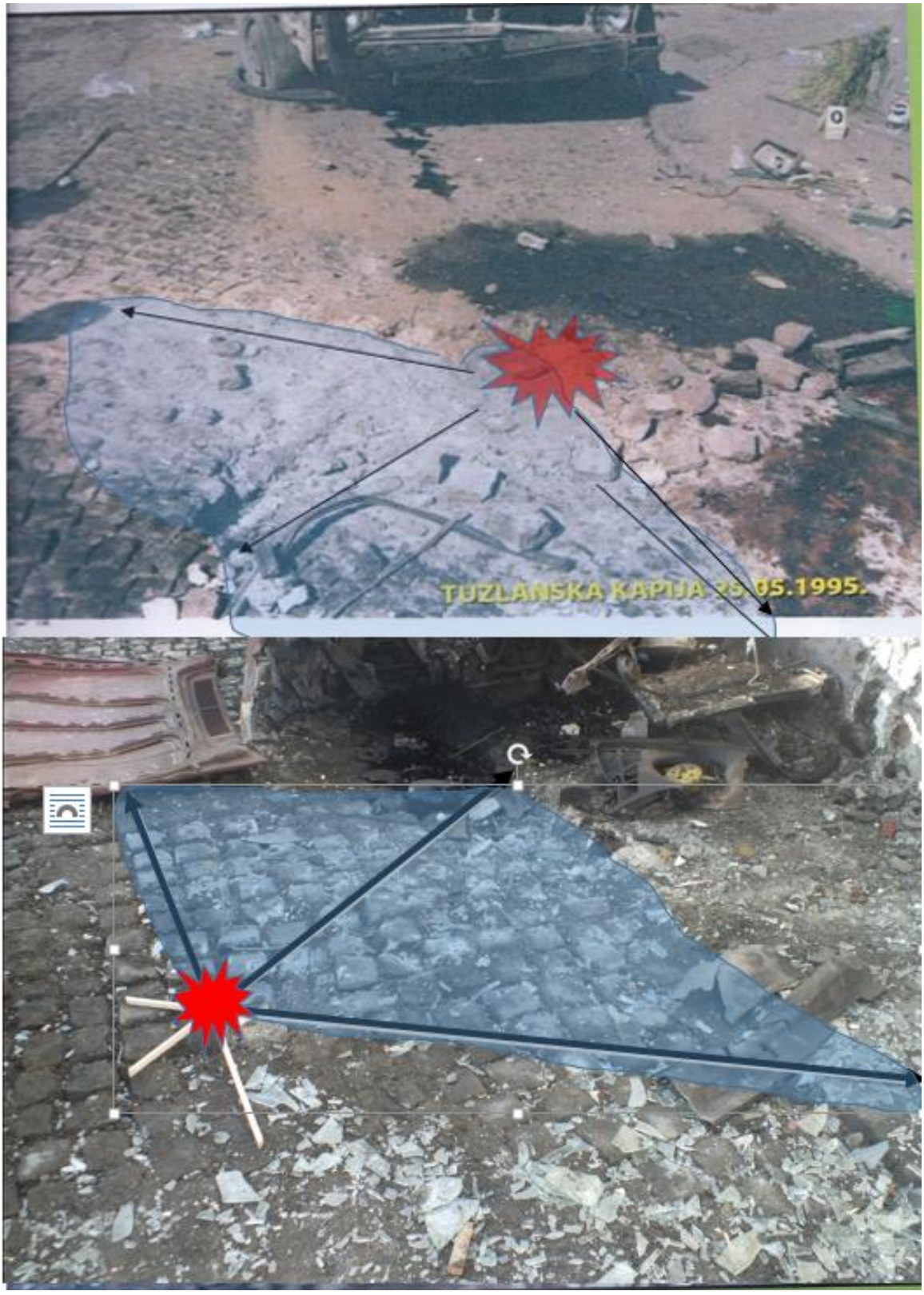
Ground Fragmentation Spread at the "Tuzla" event, surrounded by lines. The extended line crosses the Ground Fragmentation Spread and the center of the explosion in their center.

D. The Ground Fragmentation Spread of explosive warheads – comparative real cases

Comparative photographs of the Ground Fragmentation Spreads of explosive warheads – Ground Fragmentation Spreads are found in the direction of the source of the fire. Pay attention to the symmetry of the Ground Fragmentation Spread – the center of the blast is located at the vertex of an equilateral triangle. This enables precise determination of the direction of the shooting. At the arrow is the direction of the impact of the shell.

The center of the warhead explosion on the surface paved with tiles. Pay attention to the similarity of the Ground Fragmentation Spread in terms of characteristics of color, grooving and fracturing of the surface at Tuzla, despite the difference in the type of paving.

E. Comparison between directions of the Ground Fragmentation Spread at the "Tuzla" event and test no. 1 on 10/02/2016 at the Technical Test Center (see below)

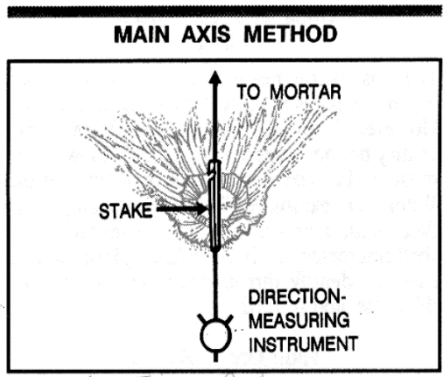


The results indicate totally opposite directions of the Ground Fragmentation Spread between the Tuzla event and test no. 1.

F. Reference to the determination of the shooting direction based on the measurement methods that were implemented by Dr. Zecevic

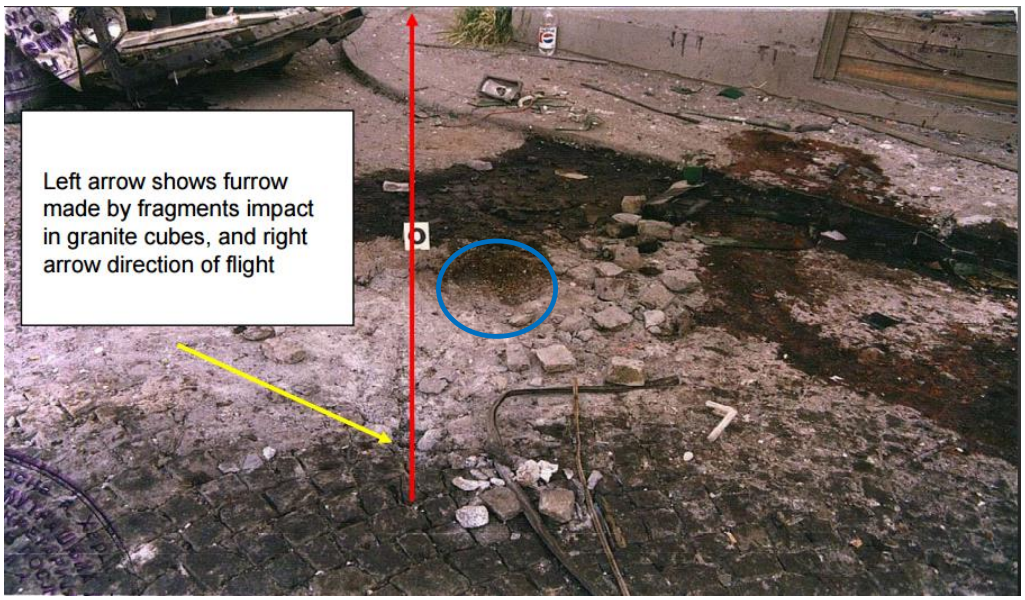
1. The Court had placed great emphasis in the verdict on the actions implemented by Dr. Zecevic, by means of which the direction of arrival of the shell was determined. See the introduction to this study.
2. In general, Dr. Zecevic based his determination regarding the direction of the shooting on the furrow detected in the square granite stones to the East of the center of the explosion.
3. Already at this point, it should be said that in view of the determinations in this report that the Ground Fragmentation Spread indicates the real direction of shooting, consequently Dr. Zecevic's determination is fundamentally erroneous.
4. In the professional literature, methods are mentioned to locate the source of fire according to the center of the explosion and fragmentation spread. One of these methods is listed here

Main Axis Method



- Lay a stake along the main axis of the crater, dividing the crater into symmetrical halves. The stake points in the direction of the mortar.
- Set up a direction-measuring instrument in line with the stake and away from fragments.
- Orient the instrument.
- Measure the direction to the weapon.

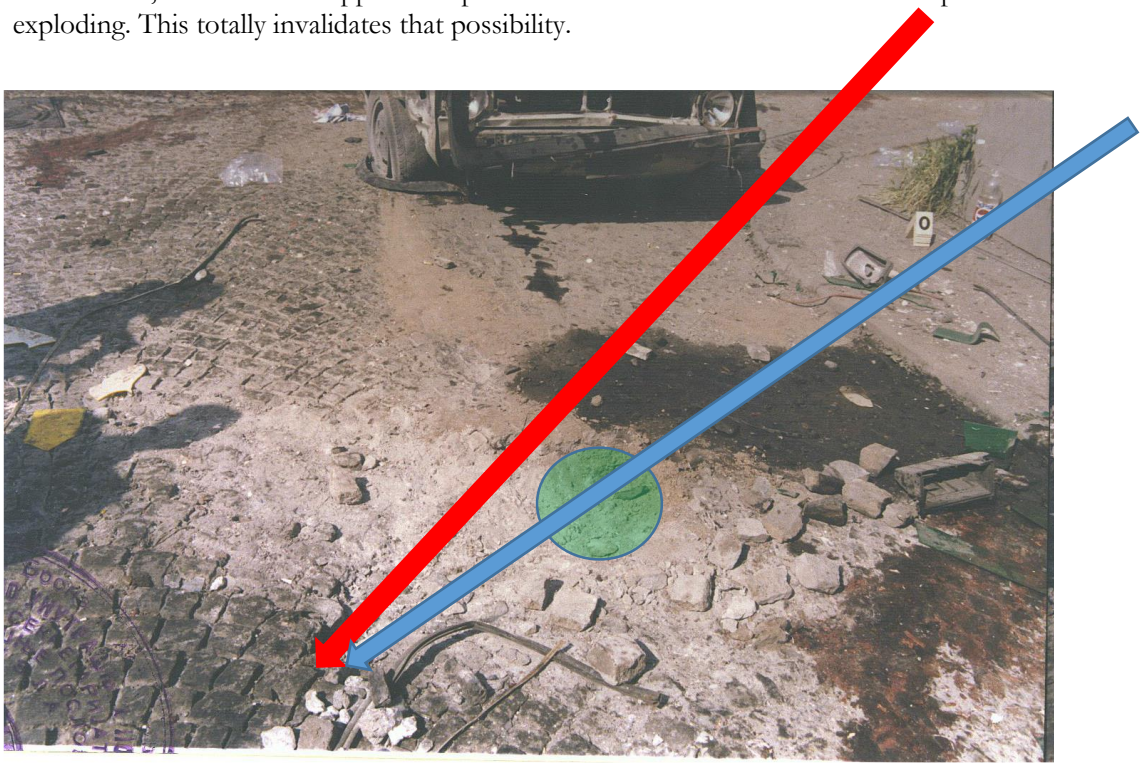
5. Contrary to the aforementioned, Dr. Zecevic determined the original direction of the fire by relying on the particular furrow in the ground, while determining that its source is the shrapnel from the shell, and that it could indicate the direction of shooting. However, in-depth study of that same furrow indicates that this **furrow does not derive from the center of the blast but it continues in parallel to the blast center,** as can be seen in the image.



It is probable that the furrow on which Dr. Zecevic based his determination is the result of cracking, crushing and separation of flagstones that were arranged in semi-circular shapes and which served as the paving surface of the road and sidewalk. Basing the determination on this furrow is erroneous and does not indicate the source of the fire.

6. According to the standard methods used to detect the direction of the shooting, as mentioned above, it is necessary to transfer a straight line that divides the center of the blast into 2 equal parts through the center of the Ground Fragmentation Spread.

7. **Summary**
Dr. Zecevic implemented measurement that contradicts even the methods indicated in his own opinion. Analysis of the direction of firing, according to commonly accepted methods, indicates that the source of the fire should be found in the Northwest direction,(blue arrow) -opposite the facade of the adjacent Nik building and not in the west direction as pointed out by Dr. Zecevic. In other words, the shell was supposed to penetrate the wall of the "NIK" structure prior to exploding. This totally invalidates that possibility.



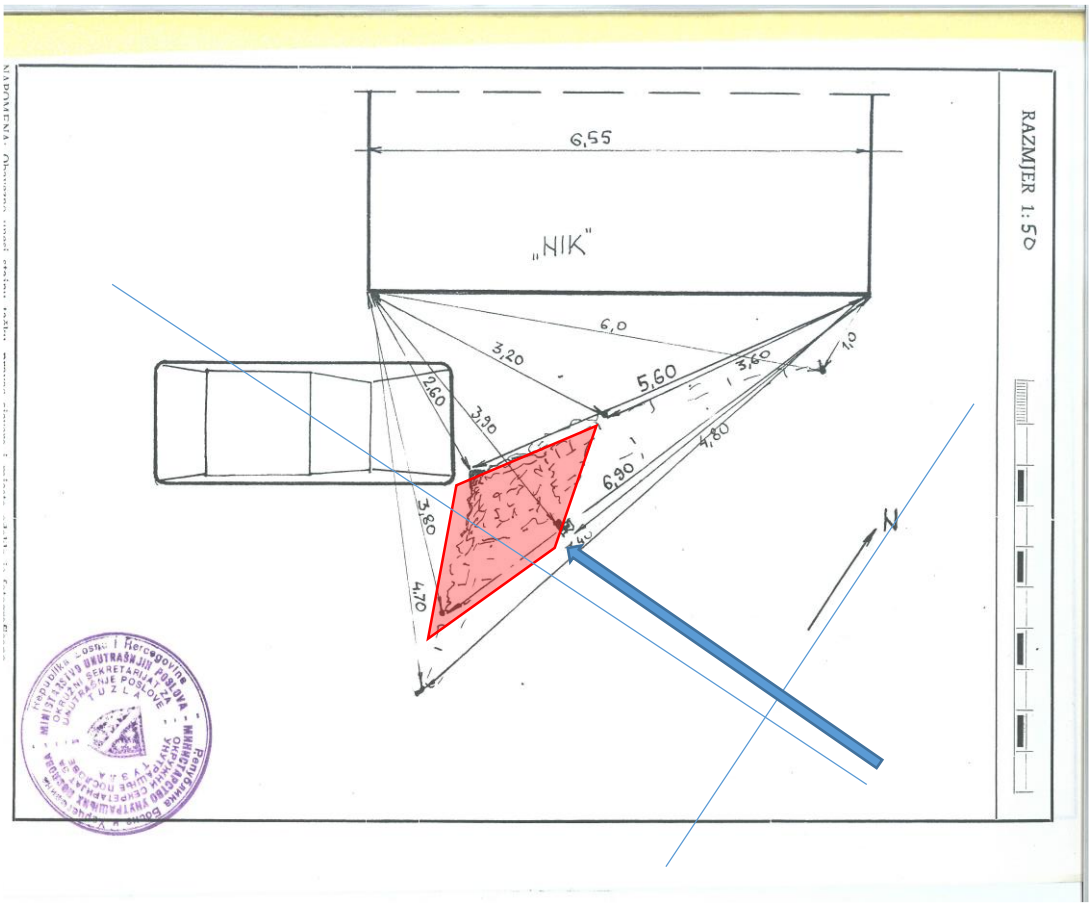
In blue – the direction towards the source of the firing, based on standard measurement methods

In red – the direction of firing according to Dr. Zecevic's opinion

G. Conclusions:

1. According to the comparisons between the events of impact of explosive shells on the ground, as well as the results of experiment conducted in light of the Tuzla event, it is clearly apparent that the Ground Fragmentation Spread unequivocally indicates the direction impact of the shell on the ground.

2. Analysis of the directions of the Ground Fragmentation Spread at the Tuzla event, in view of the aforementioned, indicates that the direction of impact of the shell is totally different (completely opposite) from that indicated by the prosecution expert, Dr. Zecevic. Transfer of a straight line in the drawing shown below, which cuts through the axis of symmetry of the fragmentation spread and the center of the explosion, according to the MAIN AXIS METHOD specified above, and cross-referencing with the North-South axis, as it appears in the drawing, indicates that the shell came from the Eastern direction, contrary to what is stated in the report of Dr. Zecevic.



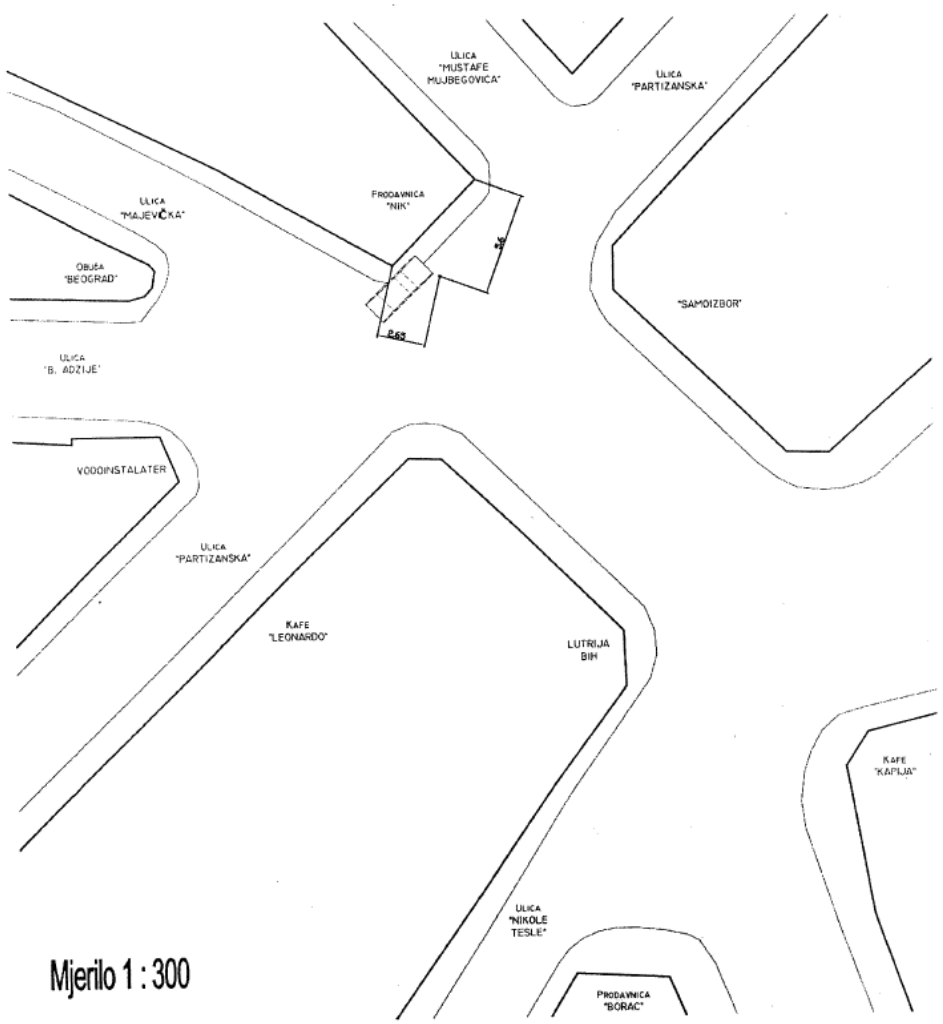
The direction of the explosive item that exploded in Kapija Square, based on a Ground Fragmentation Spread.

The line of symmetry of the center of the explosion and the Ground Fragmentation Spread facilitates determining with full certainty the direction of firing.

Chapter B – Location of the Vehicle.

A. Location of the vehicle according to the opinion of the prosecution's expert

To validate the assertion concerning the direction and angle of firing the shell so as to suit his findings in the field, the prosecution's expert positioned the "Golf" vehicle at a distance of 47 cm from the building, while the front vehicle's bumper is 130 cm away from the corner of the building (page 62 of the original report). Dr. Zecevic determined that this location of the vehicle from the wall necessitates the vehicle being parked so that the two left wheels were on the sidewalk at the time of the explosion. The width of the "Golf" vehicle is 1.61 m, in other words, the vehicle was parked in such a way that almost half of it located on the sidewalk, while only part of it was on the road. The expert attached a diagram to his opinion backing up this assertion.

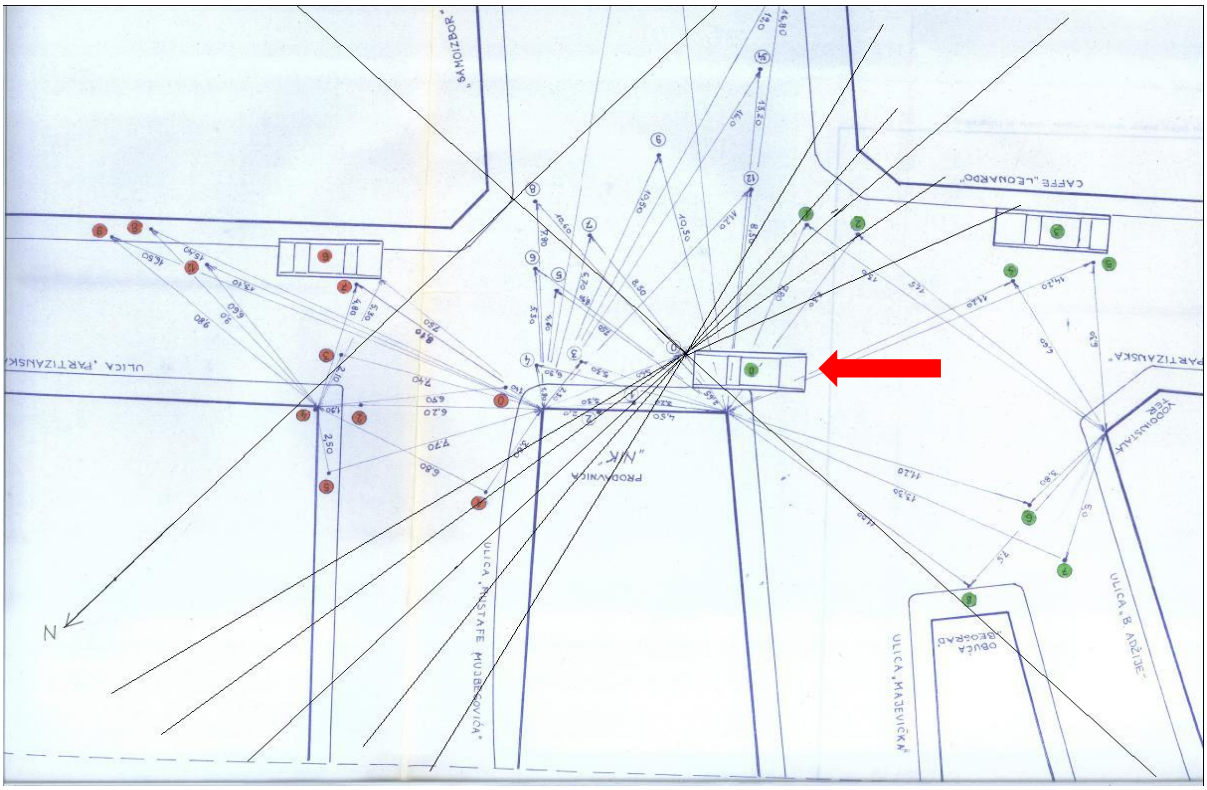


Sl. 59. Crtež trga Kapija sa naznačenim objektima i mjestom eksplozije

Distance of the vehicle from the wall of the "NIK" building according to the report of the prosecution's expert

B. Findings at the Scene Indicate the Location of the Vehicle at the Time of the Explosion

1) The original police diagram positioning the <u>whole vehicle adjacent to the sidewalk</u>



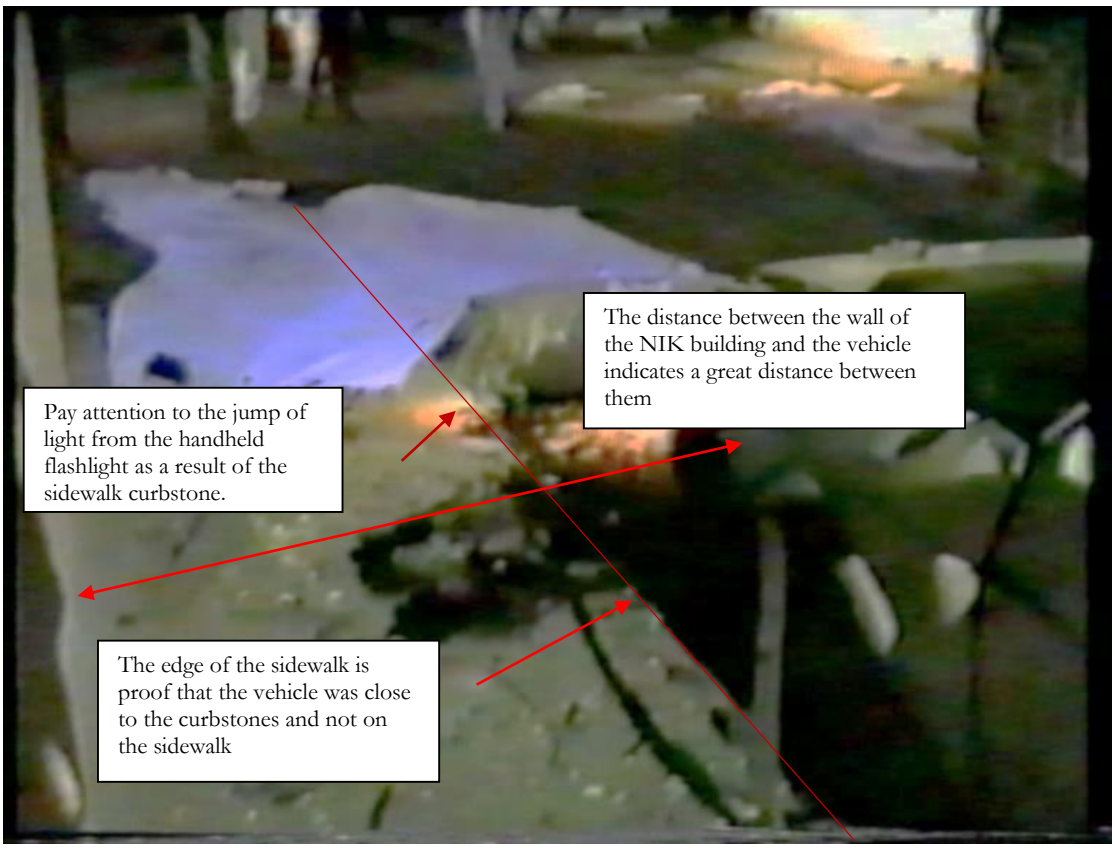
2) Stain of engine oil caused by the effect of the explosion – concentrated only on the road

The vehicle, as photographed at the scene prior to being moved – the oil stain is found under the engine of the vehicle

The oil stain after the vehicle was moved – it is clearly apparent that the oil stain is found only on the road and not on the sidewalk as it would have been if the vehicle had in fact parked on the sidewalk prior to the explosion. The towing marks testify that the vehicle was positioned only on the road.

The vehicle after it was moved from its location – the oil stain indicates the exact location of the vehicle in relation to the center of the explosion and the sidewalk.

3) Location of the vehicle in relation to the sidewalk



Photograph of the vehicle and the scene immediately after the explosion. The wheel of the vehicle is adjacent to the curb of the sidewalk.

Determination of the location of the vehicle in relation to the wall of the building – according to data of the vehicle the distance of the vehicle from the wall of the building can be determined – about 1.1 to 1.2 m

View from the rear towards the location of the vehicle prior to being moved – the wheels of the vehicle are adjacent to the sidewalk.

The sidewalk close to where the explosion occurred. The width of the sidewalk is about 1.1 to 1.2 m.

4) Conclusions:

All findings are based on photographs taken at the scene immediately after the explosion, and on the drawing done at the scene itself placing the vehicle with all four wheels on the road.

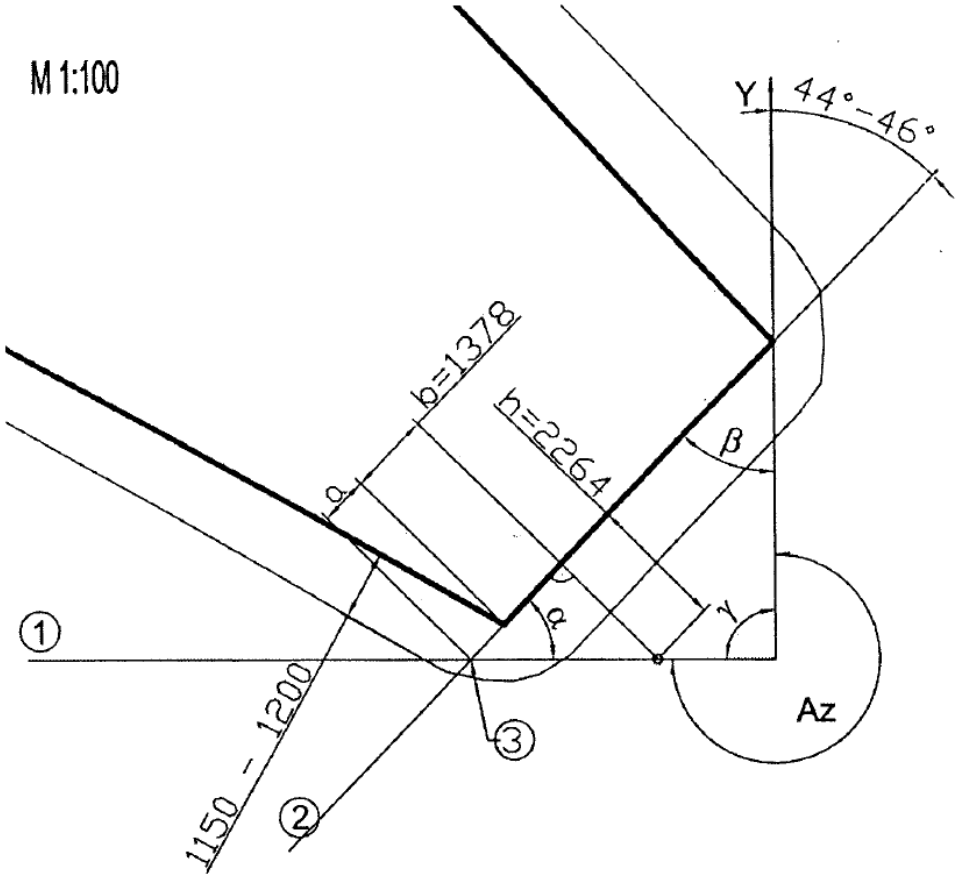
Moreover, because the action of the shockwave of the shell explosion on the body of the vehicle is supposed to push the body of the vehicle further away from it towards the wall of the "NIK" building. This shockwave action was demonstrated in the experiments done by the author (see below), so that in fact the vehicle was supposed to be found up against the wall of the building and not on the road, as claimed by Dr. Zecevic, so that the claim that the vehicle was located largely on the sidewalk at the time of the explosion significantly contradicts the objective findings at the scene itself.

This location of the vehicle, contrary to what is stated in the opinion of prosecution expert Dr. Zecevic– negates Dr. Zecevic 's assertion regarding the direction of the firing of the shell and the angle of impact on the ground that were determined as such but because of the location of the vehicle according to Dr. Zecevic's version.

Chapter C. Explosion Crater Relative to Vehicle Location

A. Reference to the opinion of prosecution expert Dr. Zecevic:

According to the calculations, as stated in the opinion of the prosecution expert, the explosion crater is found 2.264 m from the wall of the building and a distance of 40 cm from the right front corner of the vehicle. According to his opinion, the angle of impact of the shell at the time of the explosion was 62–67 degrees, while the source of the fire was at an azimuth of approximately 270 degrees. This angle of the shell whose length is 619.51 mm shell places the edges of the base of the shell, according to the opinion of Dr. Zecevic, at a close contact to the side of the vehicle.



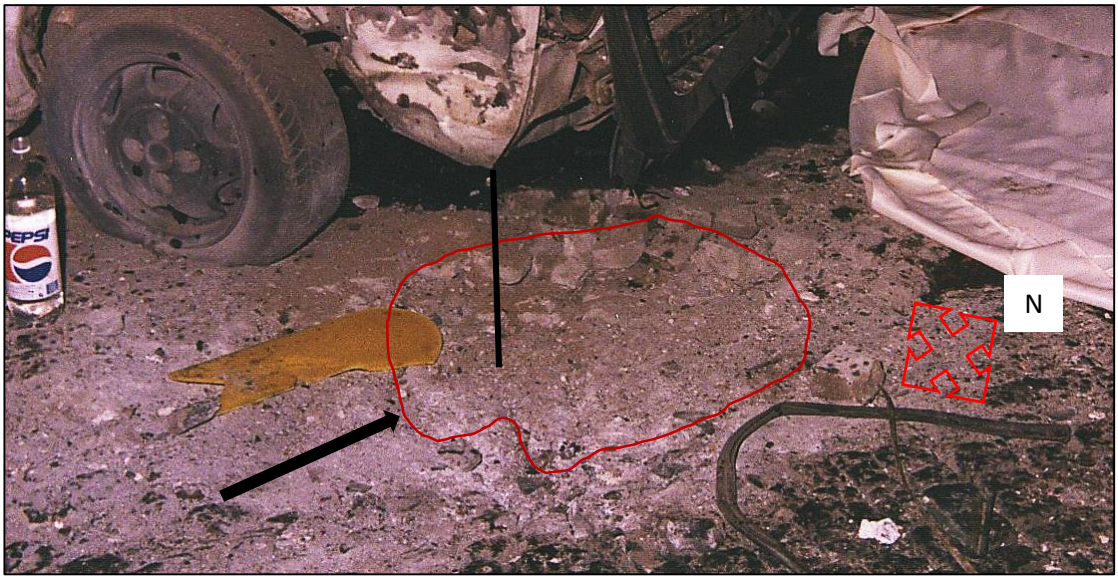
Sl. 69. Skica za definiranje ugla pravca doleta projektila

Page 58 of the opinion

This impact angle was determined, according to the opinion, as the minimal angle of impact by which the shell could have passed over the right front side of the vehicle (see hereafter from the translated report)

B. **Location of the Explosion crater - findings in the area**

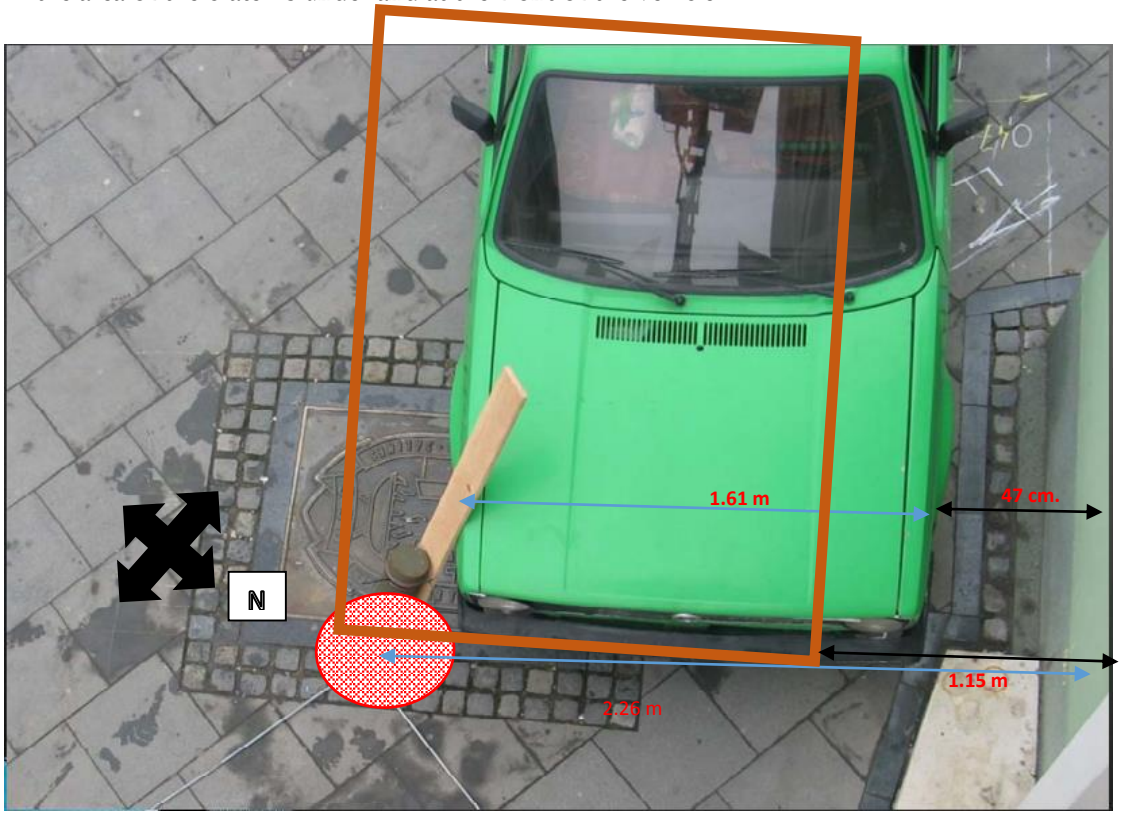
From the original photograph that was taken soon after the occurrence of the event, prior to moving the vehicle, it can be very clearly seen that the explosion crater is located at the front of the vehicle, and part of it is even under the body of the vehicle. You can discern that the eastern edges of the crater (marked by the arrow) only slightly protrude beyond the body of the vehicle.



C. **Analysis and Conclusions:**

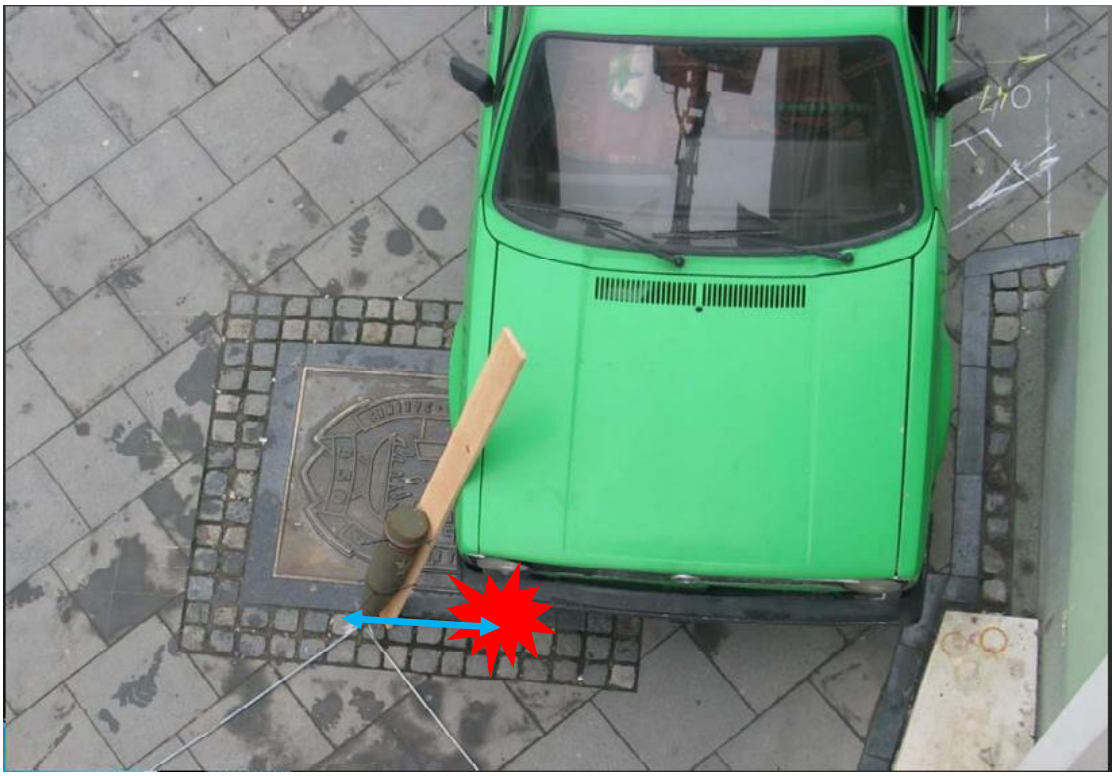
1) According to measurements conducted by Dr. Zecevic and which were attached to the report that was submitted, the distance of the crater from the wall of the "NIK" building is 2.26 m. The diameter of the crater, according to the opinion of Dr. Zecevic, is 50 cm..

2) According to the opinion of the prosecution's expert, the shell exploded just 40 cm from the front right side of the vehicle. Assuming the point of impact of the shell was roughly at the center of the explosion, the edges of the crater were supposed to be found at a distance of 15 cm away from the side of the vehicle (40-25). This statement completely contradicts the photographs from the scene, in which it can be clearly seen that the edges of the explosion crater are found only a few centimeters outside the framework of the vehicle, while the rest of the area of the crater is under and at the front of the vehicle.



Simulation of the location and size of the center of the explosion, relative to the vehicle, according to the measurements as stated in the opinion of Dr. Zecevic (marked in red). This position is the result of determining the diameter of the explosion crater – 50 cm, and the configuration of the crater relative to the location and angle of impact of the shell. It can be seen, as previously mentioned, that this location, places the crater entirely outside the limits of the sides of the vehicle.

Moving the vehicle a distance of 1.15 m from wall of the "NIK" building (the brown frame) places it precisely in accordance with the original data in Kapija explosion crater. In this situation the version of Dr. Zecevic is totally refuted because, according to his scenario, the shell came from Azimuth of 270 degrees and **would have had to penetrate through the hood of the vehicle before it exploded.**

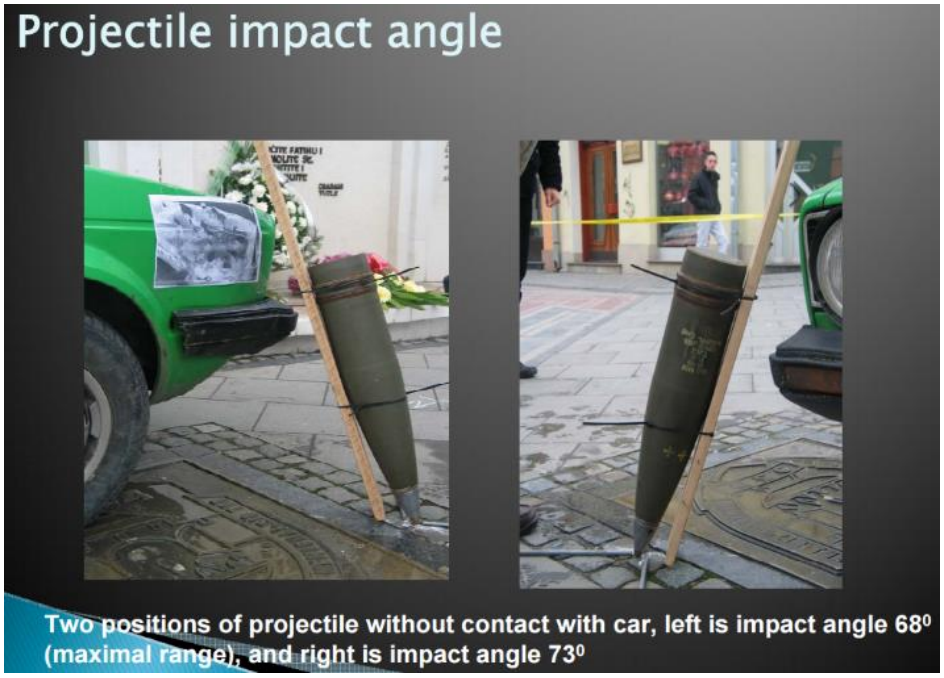


Actual location of explosion crater (in red) in accordance with Dr. Zecevic's version

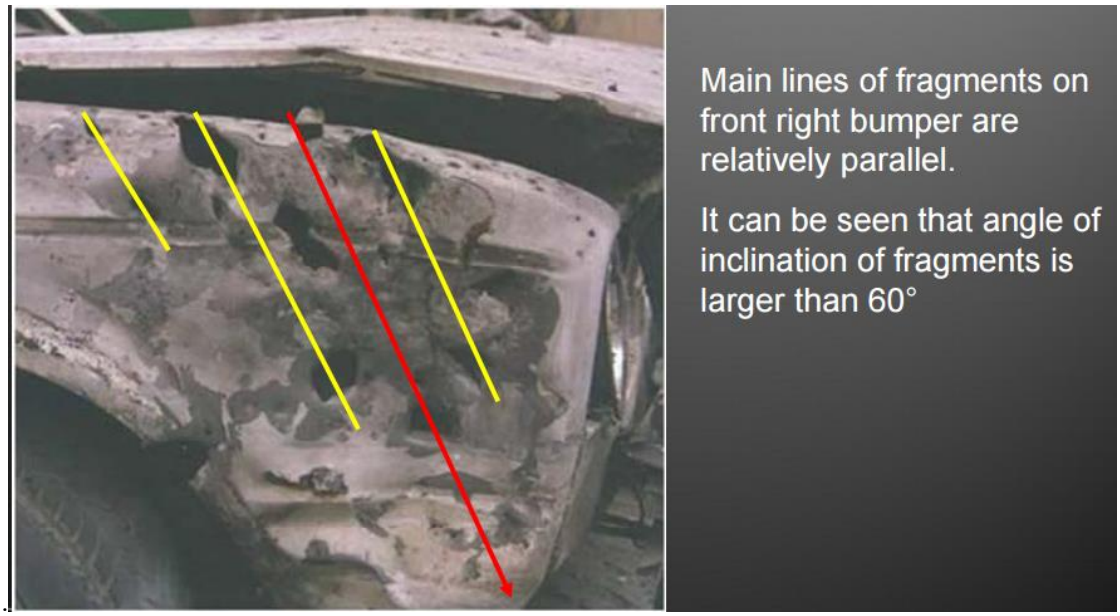
Chapter D – Characteristics of Fragmentation Damage to the Golf car

A. Determinations of the prosecution's expert

In his opinion, the prosecution's expert determined that, as stated above, the shell exploded at a distance of 40 cm from the right front corner of the vehicle. The shell landed at an angle of 62–67 degrees, from a general Westerly direction.
These determinations lead to the conclusion that base of the projectile will be found at a distance of a few cm from the side of the vehicle.



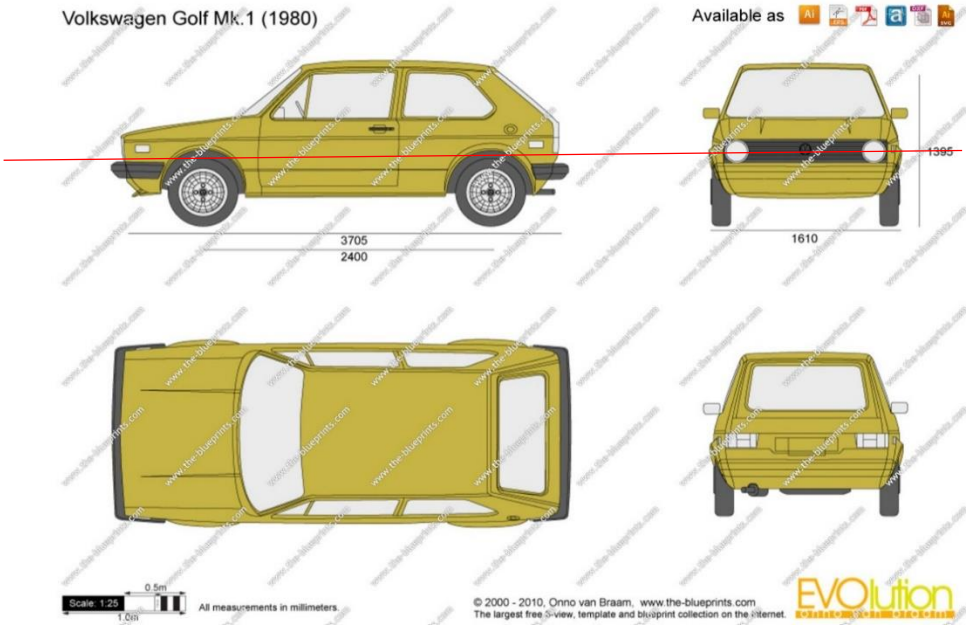
The expert relates, in his opinion, to shrapnel damage to the vehicle's right wing, while he draws the lines along the axis of the shrapnel, and from this reinforces his argument that the shell fell at an angle greater than 60 degrees.
Apart from this reference, there is no other reference of the expert to the rest of the damage to the vehicle or even a theoretical reference to possible damages in relation to the vehicle relative to the location of the shell – distance from the vehicle and angle of impact



It should be stated that, apparently, the expert did not conduct any investigative action with regard to his findings:
The expert did not perform any experimental explosions that could verify or reject his version.
The expert did not examine the vehicle and there is no finding that the specialist saw the vehicle, since then he would have had to thoroughly examine the vehicle and locate hits/damage, especially at the bottom part (the engine), which could indicate the characteristics of the shrapnel and pressures close to the center of the explosion.

B. Vehicle data

The vehicle that was hit was a "Golf" Mark 1 manufactured by Volkswagen



At the red line – the base of the shell found at an angle of 62 degrees

C. Damage to the vehicle:

1. Shrapnel damage, soot blackening, signs of ricochets and pieces of embroidery and a small dent of the right wing.
2. Shrapnel penetrations in the lower part and traces of ricochets and probably a few pieces of embroidery on the bottom section of the right door of the vehicle.
3. In the front fender of the vehicle several characteristics of damage were diagnosed in the form of distortion:
    a. The right corner of the front fender was torn loose and distorted upwards and to the right.

b. The front of the fender was folded downwards.
c. The left corner of the fender was torn loose and distorted downwards.
d. On the fender were signs of ricochets from the top downwards.

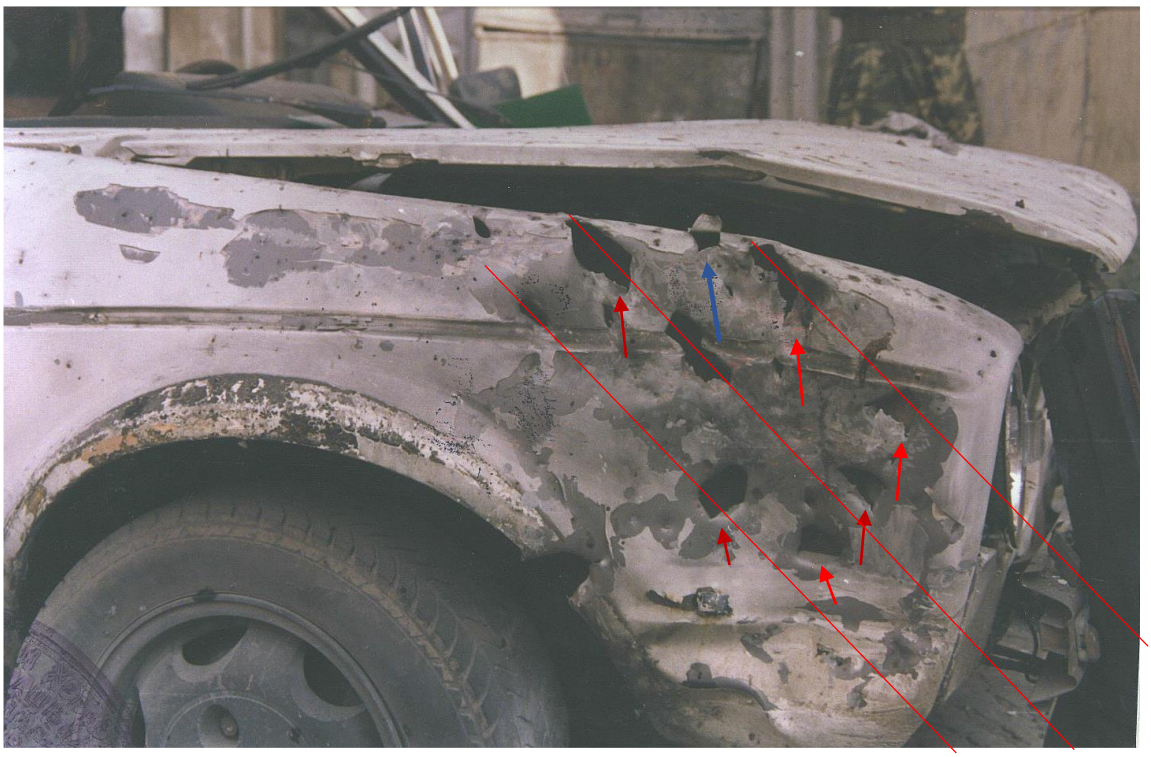
4. The grille of the vehicle's engine was ripped from the vehicle and found at a distance of 5 m from the front of the vehicle.
5. The headlights of the vehicle were broken.
6. Damage (apparently shrapnel) and shockwave, possibly significant, occurred in the lower section of the vehicle's engine and assemblies. The evidence for this spilled engine oil on the road, beyond that, there is no evidence of the severity of the damage.
7. The vehicle's windows: front right, and possibly the front left, was shattered.
8. The front windscreen was totally uprooted from its place and landed on the roof of the vehicle. The bottom right corner of the window was broken and there were bloodstains.
9. The right front tire was punctured, no apparent damage was found to the rim of the wheel. The other wheels were not affected.
10. The rest of the vehicle, including the inside parts were without significant damage.
11. The engine hood was distorted upwards; on the hood were signs of ricochets and pieces of embroidery.

The vehicle from the Eastern direction

The vehicle from the driver's door direction. No effect of shockwave or pressure is apparent.

The inside of the vehicle. There is no evidence of serious damage to the inner assemblies of the vehicle including the seats.

D. Analysis of the Damage to the Right Front Side of the Vehicle



1) **<u>Shrapnel</u>**
An analysis was performed of the angles of impact of the shrapnel on the side. In general it was found that the impact angles are at an angle of about 50 degrees relative to the plane of the ground.
In the lower part of the wing, the shrapnel damage is perpendicular to the side of the vehicle, which indicates that the shell body was physically opposite the penetration points . At the upper section of the wing, the shrapnel penetration indicates the direction of the angle of penetration being upwards.
Moreover ,exit of shrapnel was diagnosed in an upward direction (marked in blue).

2) **<u>Dents</u>**
Denting was diagnosed in the side of the vehicle in an inwards direction in the lower part, as well as in the area of the blackening and shrapnel. The direction of the denting is diagonal and upward. This denting does not match the damage that should have happened to the side of the vehicle and additional assemblies, as a result of the direct effect of the explosion of the shell.

3) **Fender of the vehicle**
The fender the vehicle was torn from its place and distorted from **downwards in an upward direction and to the right**, indicating that the pressure applied to the fender came from the **direction of the ground upwards**.

According to the version of Dr. Zecevic, the shell exploded at an angle that should otherwise have caused the crushing of the fender while exerting explosion pressures and shrapnel in a **downward direction**, as it did in experiments performed, including without exception, crushing the fender and the side of the vehicle, downwards and inwards. The fact that at the "Tuzla" event the fender distorted upwards, without identification of the penetration of shrapnel/distortion/tearing of the fender as a result of the combination of results of the explosion of the shell indicates that the effect of the action is in an upward direction, that is, the pressure of the explosion and/or the effect of the crushing/blow moved from the bottom upwards.

Comparison of the damage to the front and the wing of the vehicle at the "Tuzla" event and the test results conducted on 10.02.2016 at the Technical Test Center in accordance with the expert opinion of Dr. Zecevic (see below), which verifies and emphasizes the significant differences between the cases.

Chapter E – Casualty Injuries

As noted, the explosion in Kapija square killed 71 people and injured 240. The following table presents information about the casualties (killed), including serial number, location (if evidence available) and major injuries sustained.

Serial No.	Fragmentation	Soot darkening	Shattered	Location according to evidence
1	Positive	Positive	Lower part of right leg	Unknown
2	Chest, abdomen, legs	Lower left leg	Negative	Unknown
3	All over body – small and extensive	Positive	Negative	2-5 m in front of NIK
4	One fragment in the chest	Negative	Negative	In front of Caffe Gulam - 15 m from explosion crater
5	Lower abdomen, left thigh, left knee	Negative	Negative	Lotto – 18 m
6	Upper body, legs and chest	Positive - face	Negative	Behind Golf vehicle – 4 m from explosion crater
7	Left shoulder, right hand, legs – small scale	Negative	Massive tear in front part of left leg	Unknown
8	Left chest, left hand, lower abdomen, and leg – small scale	Negative	Negative	Unknown
9	2 fragments in chest	Negative	Negative	Unknown
10	Abdomen	Negative	Negative	Unknown
11	Lower part of legs	Negative	Negative	Unknown
12	3 fragments in lower abdomen	Negative	Negative	10 m from explosion crater, towards Caffe Leonardo
13	Large fragments – knee, hand, chest and several small	Negative	Negative	13 m from explosion crater – Caffe Leonardo
14	Numerous fragments, some large in leg area	Leg area	Negative	Near victim 39. 3 m from explosion crater
15	Extensive small fragments - chest, abdomen, upper legs, neck	Negative	Negative	Unknown

16	Extensive fragments, legs - small	Front of body	Negative	Unknown
17	Small amount and small – head, shoulders, chest	Negative	Negative	Unknown
18	Abdomen. Legs – extensive fragments	Front of body and right knee	Severed foot	7 m – Kapija building
19	Extensive small fragments all over back of body	Negative	Negative	6.5 m from explosion crater – in direction of face of Samoizbor building
20	2 fragments – chest and abdomen	Negative	Large tear in left thigh	Samoizbor building
21	Extensive fragments – thighs, abdomen, chest	Knees and lower leg	Thumb	Samoizbor building
22	Extensive fragments in chest, abdomen and leg area	Left leg	Tear wound in left thigh	Samoizbor building
23	Small amount of fragments – upper chest and lower abdomen	Negative	Negative	Corner of the building near Belami boutique – 7 m from explosion center
24	One fragment in chest	Negative	Negative	18 m from explosion center – Caffe Gulam
25	Small amount of fragments, relatively large - chest, shoulder, legs	Negative	Negative	11 m from explosion crater – front of Kapija in direction of NIK
26	Number of fragments - thighs	Negative	Negative	Front of Lotto store – 16 m from explosion crater
27	4 fragments – shoulder, leg, chest and head	Negative	Negative	6 m from explosion crater in direction of Kapija building
28	3 chest, 2 left hand, abdomen	Negative	Negative	5 m from explosion crater in direction of Samoizbor
29	3 fragments in legs, 1 in head	Negative	Negative	Lotto store – 17 m from explosion crater

30	Large fragment penetrated right side of chest + fragments and injury to lower legs	Negative	Negative	Front on corner of Samoizbor building, 5 m from explosion crater
31	3 large tears in legs, 2 tears in shoulder and penetration of fragment into skull	Negative	Negative	10 m in direction of Kapija
32	Legs and abdomen	Head	Negative	Unknown
33	Extensive fragments in chest and abdomen	Lower left leg	Right hand severed, head injury, tear on right side of body and neck	Unknown
34	Massive fragment injuries – legs and abdomen, chest and shoulder	Head, chest and left hand	Negative	Unknown
35	Chest, hands, abdomen and legs	All area of legs	Feet severed	5.5 m from explosion crater. Corner of NIK building.
36	Extensive small fragments - chest, abdomen and legs	Face and hands – exposed skin	Negative	2.5 m from explosion crater. In front of NIK building
37	3 fragments in legs, massive amount of fragments in chest	Negative	Right shoulder severed	6 m from explosion crater towards side of Samoizbor
38	Chest, lower abdomen and legs	Massive in front of body and on pants	Lower part of right and left leg shattered	Unknown. Apparently adjacent to victim 39.
39	Chest, abdomen, legs and head	Massive on pants in lower part	Bottom part of 2 legs severed	3.5 m from explosion crater in direction of Kapija
40	1 arm, 2 chest and right knee	Negative	Negative	28 m from explosion crater in front of Caffe Kapija
41	1 neck, 1 leg	Negative	Negative	17 m from explosion crater
ה	Extensive small fragments in	Legs	Lower left leg broken	Unknown

	abdomen and chest area, extensive large fragments in legs			
43	Small amount of fragments in chest area, skin tears, fragments on left side and in right thigh	Negative	Negative	9 m from explosion crater in direction of side of Samoizbor building
44	Relatively large amount of fragments in upper chest, shoulder and face; tear in right thigh and fragment in right leg	Face	Negative	9 m from explosion crater in direction of side of Samoizbor building
45	1 fragment in face, massive tears of fragment in right leg shank and thigh	Perhaps	Massive tear of chest area and abdomen on right side	Unknown
46	Little and small fragments in head, shoulder and leg	Negative	Negative	Unknown
47	Fragments in left knee, tears in lower back and above left thigh	Negative	Negative	Unknown
48	3 small fragments in lower abdomen and left thigh, number of tears in lower part of right leg	Negative	Negative	9 m from explosion crater in direction of side of Samoizbor building
49	2 fragments in chest	Negative	Negative	17 m from explosion crater
50	1 fragment in left shoulder, 1 fragment in head	Negative	Negative	30 m from explosion crater – front of Caffe Kapija
51	Varied sized fragments in legs, tear in right thigh	Lower part of legs	Feet shattered	Unknown
52	Varied-sized fragments on all front of body	Soot on all exposed parts of body – face, hands and legs	Negative	Unknown

53	Body shattered	Probably all over.	Chest, abdomen, left arm and left leg shattered	Adjacent to explosion crater
54	Left thigh, left abdomen, left hand, abdomen and chest	Negative	Negative	Unknown
55	Right hand, left thigh and abdomen; large flesh tears on right and left sides of body	Face and apparently bottom part of left leg	Negative	8.5 m from explosion crater in direction of side of Samoizbor building
56	Lower left leg	Parts of exposed skin, especially hands and legs	Chest and abdomen area shattered and split – skull and extensive tear in left thigh	Adjacent to explosion crater
57	Insignificant	Apparently negative	Massive tear above right thigh; shattered skull and left foot	6.5 m from explosion crater in direction of side of Samoizbor building
58	Massive injury in back part of skull	Negative	Negative	16 m from explosion crater – Caffe Gulam
59	Upper chest, neck and head	Face	Negative	4 m from explosion crater in direction of side of Kapija building
60	Right shoulder, right hand, chest and abdomen	Negative	Negative	8 m from explosion crater in direction of side of Samoizbor building
61	Large tears – chest, side of left chest, side of left abdomen and left hand	Negative	Negative	8 m from explosion crater in direction of side of Samoizbor building
62	3 massive fragment injuries in legs	Negative	Chest, abdomen, skull, left thigh and right shank – shattered and split	Adjacent to explosion crater
63	Fragments in legs	Lower legs	Neck shattered from left, large tear on right side of abdomen	8 m from explosion crater in direction of Kapija
64	Fragment on left side of lower abdomen	Negative	Massive tears on left side of abdomen	16.5 m – Caffe Gulam

65	Above left thigh and right thigh	Negative	Negative	16.5 m from explosion crater
66	1 fragment in chest, 1 fragment in shoulder, 1 fragment in abdomen, 1 fragment in right thigh	Negative	Negative	Unknown
67	Flesh tears and fragments on right side	Negative	Negative	Unknown
68	Left chest, left shank, left thigh and few fragments in abdomen	Negative	Negative	Unknown
69	Right chest, right abdomen and right shank few fragments	Negative	Negative	Unknown
70	Small amount of fragments- head, chest, abdomen, left shank	Negative	Negative	Unknown
71	Chest, abdomen, left shank	Negative	Negative	17 m from explosion crater, Caffe Gulam

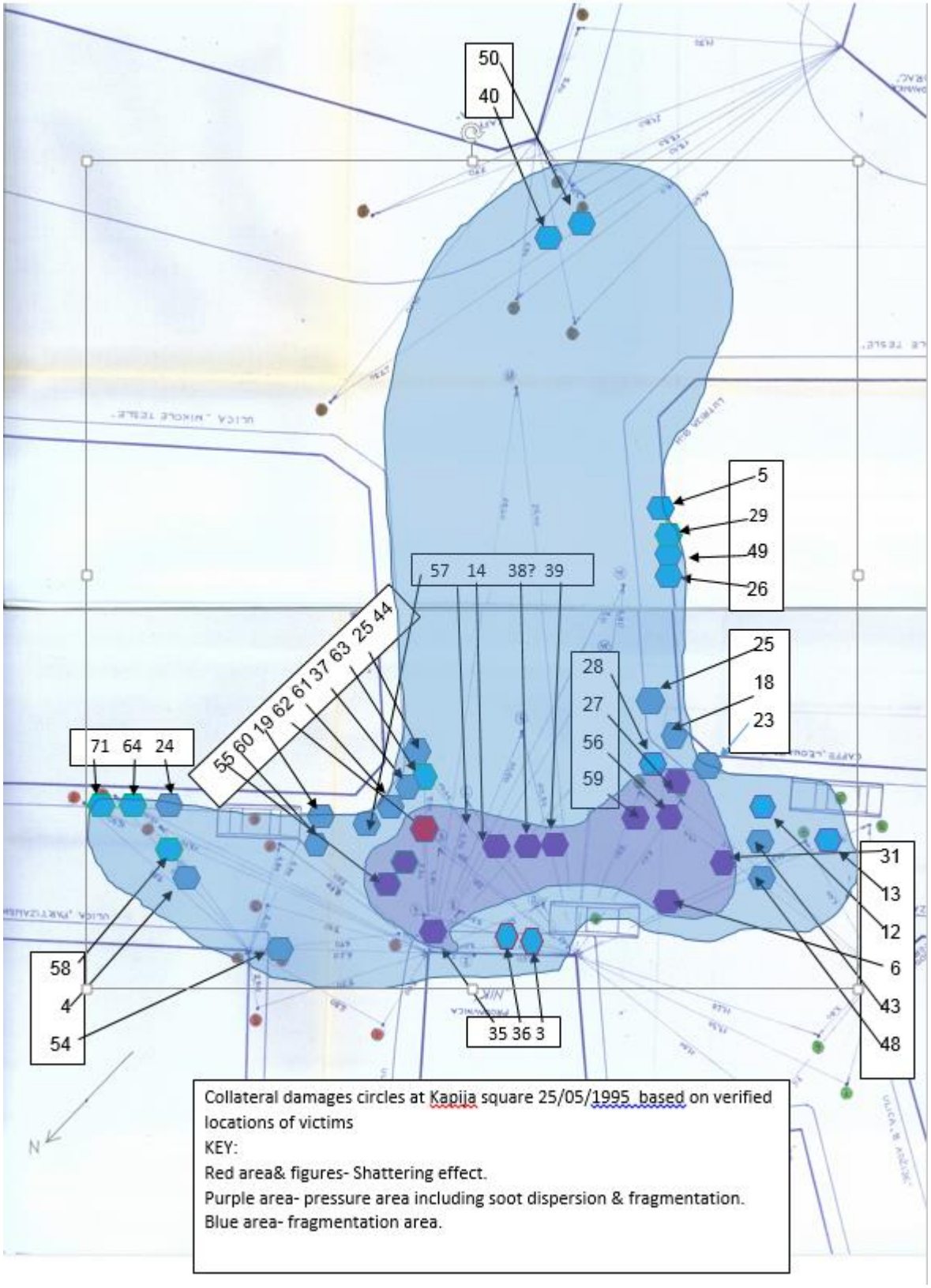
A diagram was prepared based on data from above table showing the dispersion of victims in cases that location was verified. The victims were positioned in three areas according to the general nature of their injuries.

Area 1- Victims and area where shattering effect was discerned was marked in red.

Area 2 - Area where effects of shockwave/pressure, soot and fragmentation were discerned on victims was marked in purple.

Area 3 – Area with only fragmentation effect was marked in blue

It should be noted that the location was only assumed since there is no information about the victims' precise location.



Collateral damages circles at Kapija square 25/05/1995 based on verified locations of victims

KEY:

Red area& figures- Shattering effect.

Purple area- pressure area including soot dispersion & fragmentation.

Blue area- fragmentation area.

Part II – Test No. 1

Chapter F – Comparative Tests /Test No.1 February 10, 2016 – Description of Site

A. Introduction

On 10-11/02/2016 the author conducted 2 tests to examine the main points raised in Dr. Zecevic's opinion and that were brought before the two courts as indicated in the court ruling:

1. Direction from where projectile was launched
2. The effect of the shell location relative to the vehicle on damage to vehicle.
3. Explosion damage on the NIK building that is adjacent to the explosion center.
4. The effect of the projectile direction, angle of impact and location of fragmentation as they pertain to two aspects:
   A. Injuries sustained by people
   B. Collateral damage to buildings – characteristics of fragmentation damage

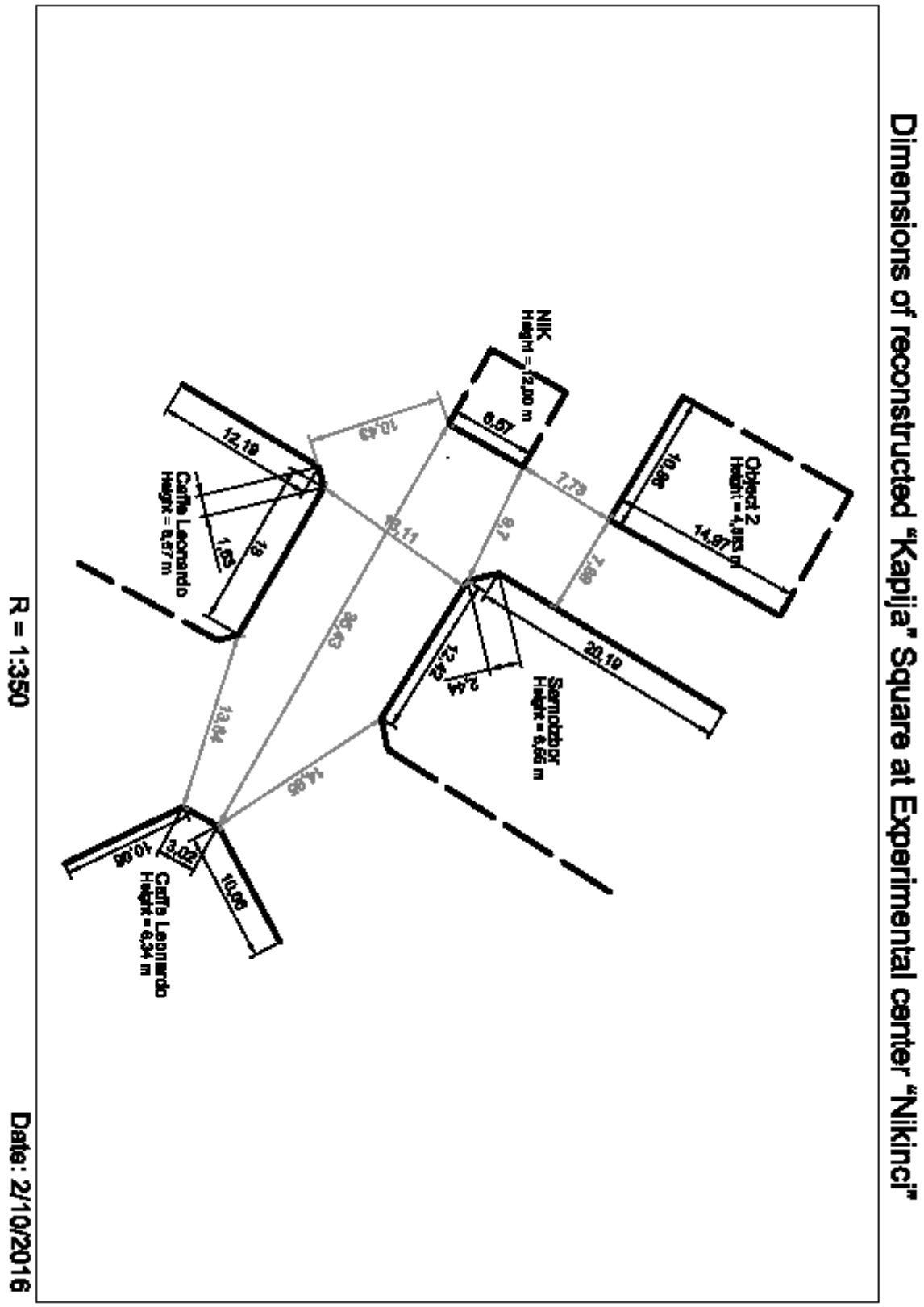
The tests were conducted under two scenarios:
The first was based on Dr. Zecevic's opinion and was conducted on 10.02.2016.
The second aimed to find congruence between the objective findings in the Kapija arena, and the test results, including:

1. Damage to car
2. Damage to NIK building
3. Damage to sidewalk
4. Characteristics of fragmentation spread on the road
5. Injuries sustained by people
6. Damage to buildings – characteristics of fragmentation damage

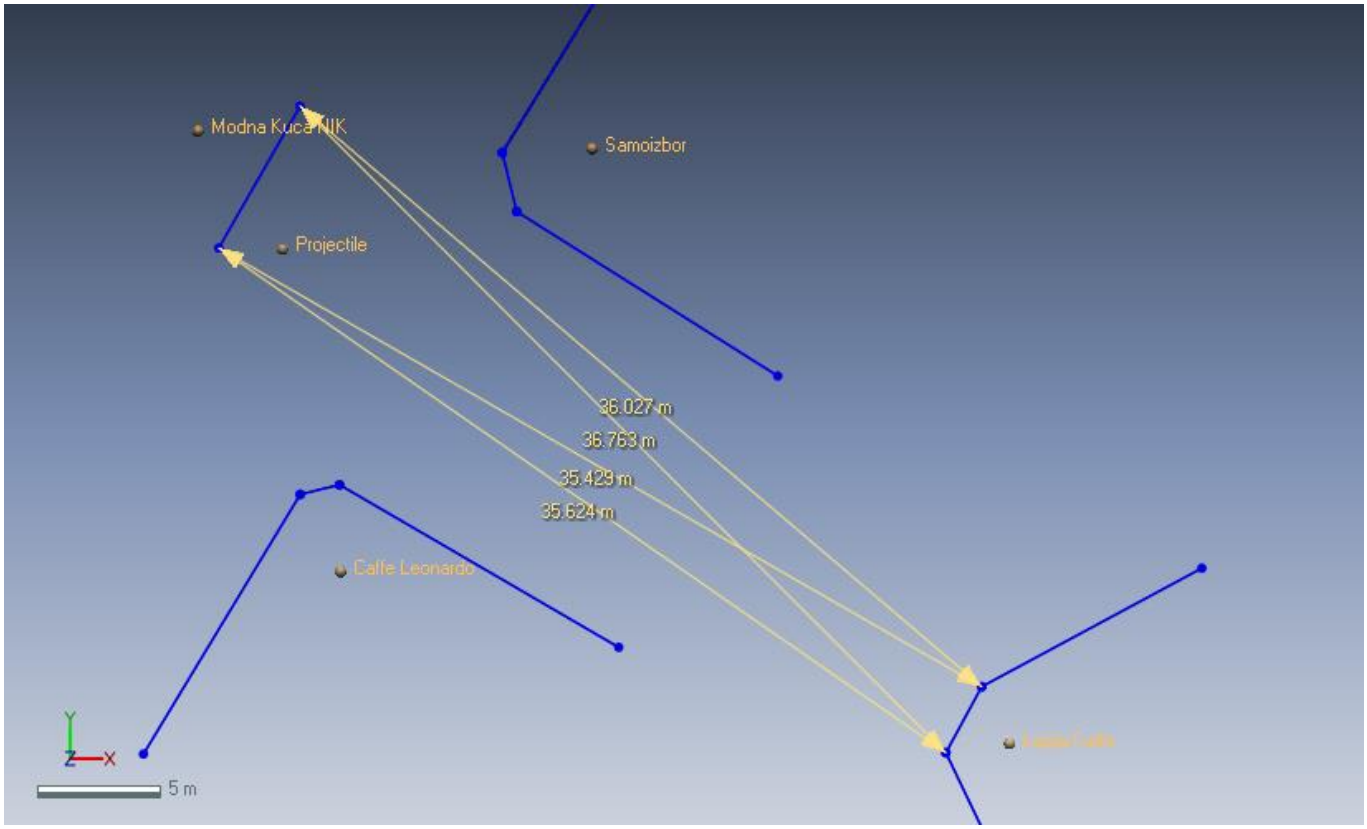
The test was conducted jointly with the French expert Pierre Laurent.
It was conducted at the Nikinci Technical Test Center in Serbia.

B. Description of Test Site

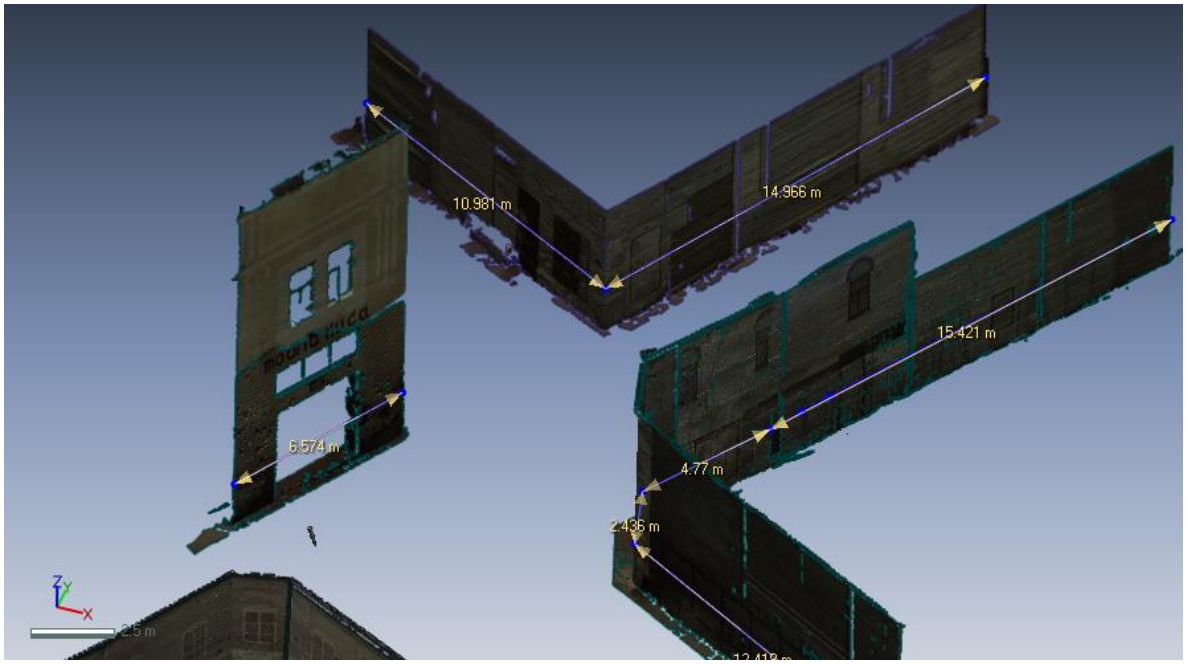
The test site was a reconstruction of Kapija square and was carried out by Serb experts.
The site consisted of 6 reconstructions of 6 buildings – see details below.
Except for the NIK building, that was built with solid materials using bricks, concrete and plaster, the remaining buildings in the square were made of sheets of wood covered by thin sheets of tin.
Sidewalks were cast in front of the buildings, 1.15 meters wide and about 5-10 cm higher than street level.
The square was paved on its western side with 10x10x10 granite stone, as it was originally paved.
The test site was divided into 2 height sections using a color line that was marked on the buildings in the square at the height of 1.80 m – parallel to the height of a human being. Additionally, the bottom section of the buildings was divided into sub-sections of 1 meter each, in order to analyze the density of fragmentation damages and their location.
On 16-17/03/2016 the test ground was scanned with a 3D laser scanner. The scan is attached.



Distance between buildings in reconstructed square – measured using 3D laser scanner



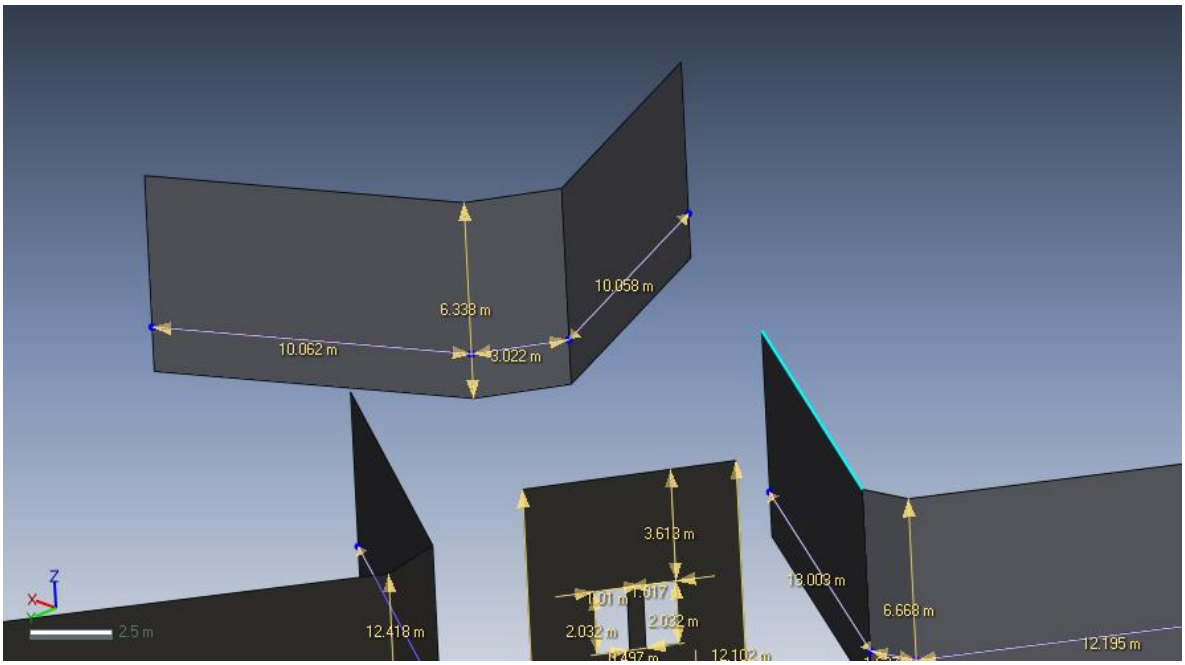
Measurement of distances between NIK building and Caffe Kapija using 3D laser scanner



Measurements of Samoizbor and the northern building using 3D laser scanner

Reconstructed Kapija square – view from Southeast to Northwest. In front of NIK building, on the left Kapija building and on the right Samoizbor building

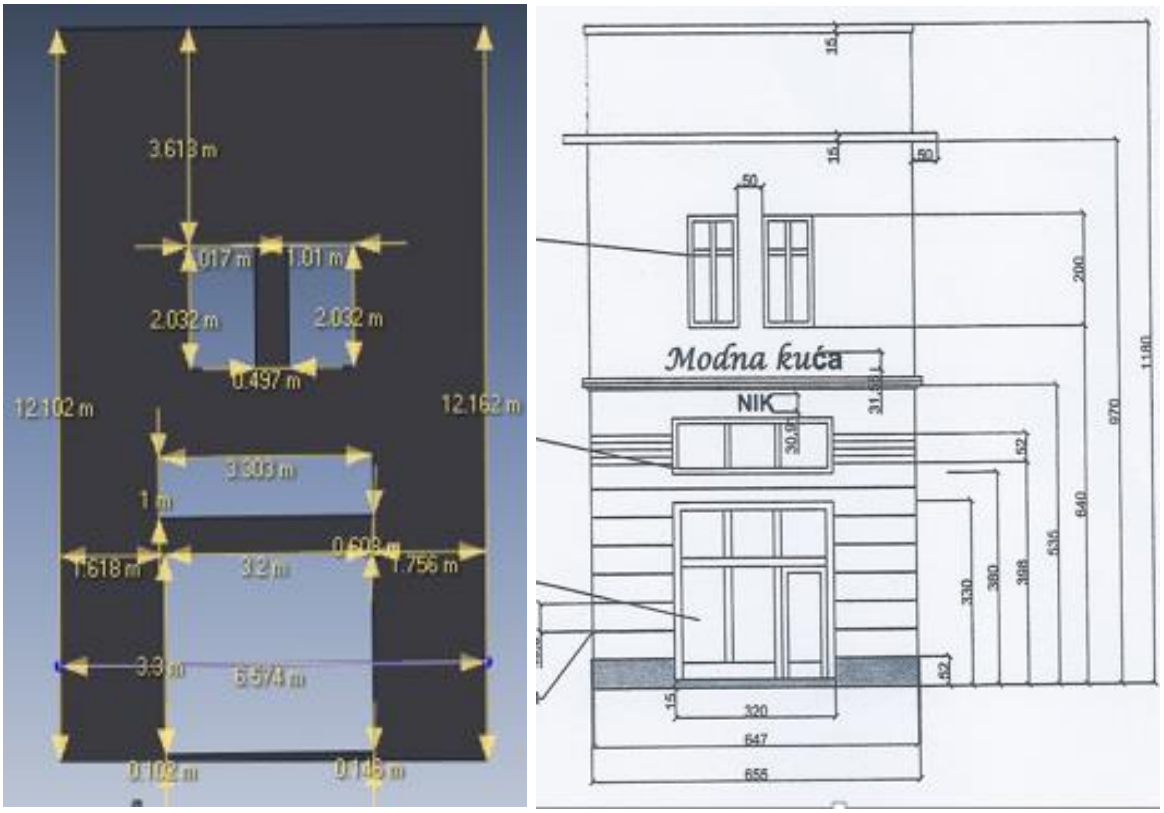
Reconstructed Kapija square, view from Northwest. On right, Kapija building, in back Caffe Kapija building



Height of buildings in reconstructed square – 3D laser scan

C. NIK Building

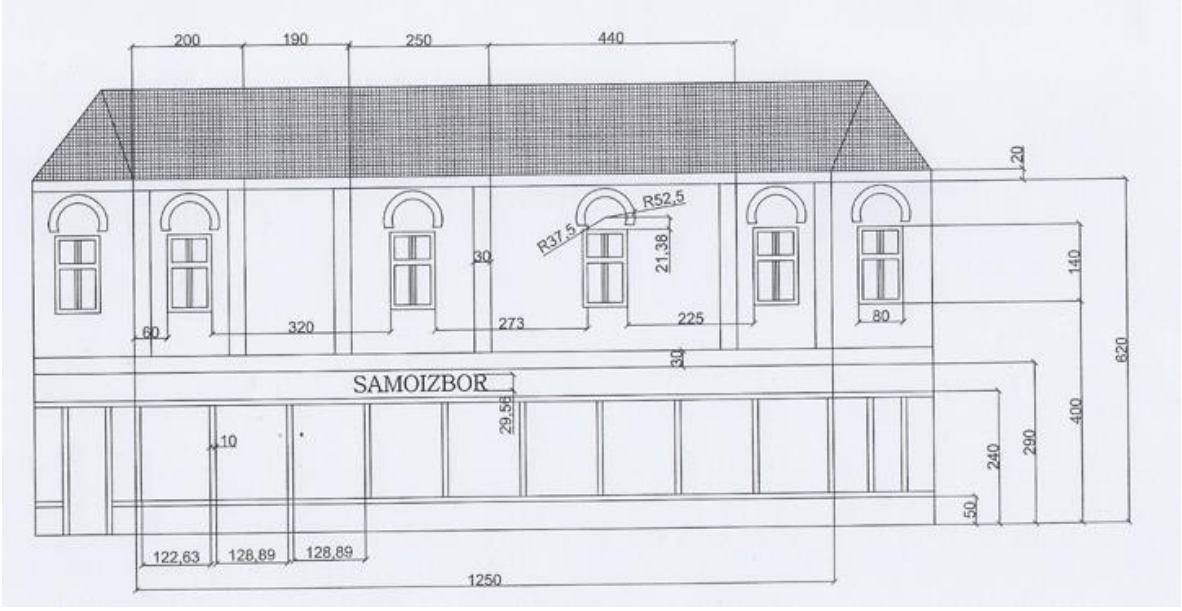
The NIK building was fully reconstructed using the materials – bricks, concrete and cement to create an accurate copy of the structure. It should be noted that fragmentation marks from prior tests are evident on this building as well as on all the reconstructed buildings at the test site. These marks were covered, sealed and painted before the tests were conducted.
The architecture of the exterior wall was also fully reconstructed.
The façade of the clothing store located in the building was also reconstructed using a wooden construction that included a display stand and window mannequins.
In the top floors the windows were closed using matching glass.
A sidewalk was cast in front of the building, 1.15 meters wide and about 10 cm higher than street level.
The street adjacent to the sidewalk was paved, as noted, with granite stone in line with the original paving.



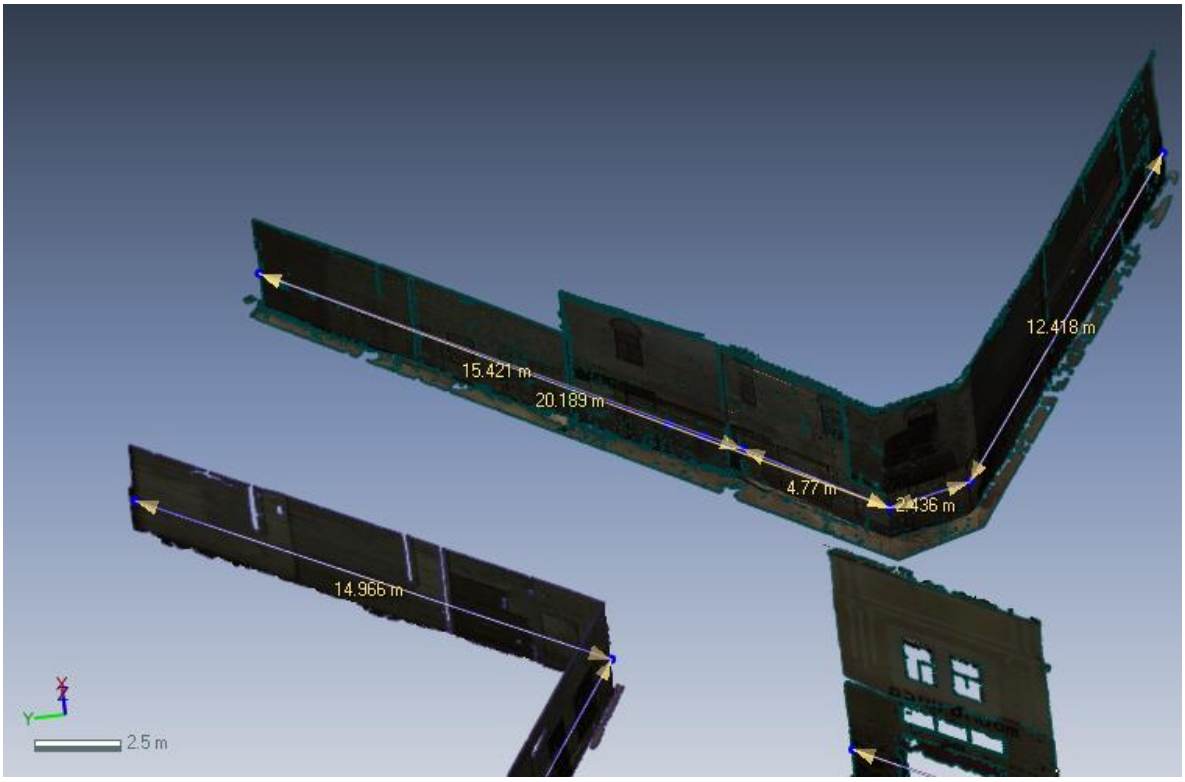
Results of 3D laser scan of reconstructed building alongside Engineering drawing of the NIK building


modna kuća
modra kuća

D. Samoizbor building



Engineering drawing – measurements of Samoizbor Southwest façade

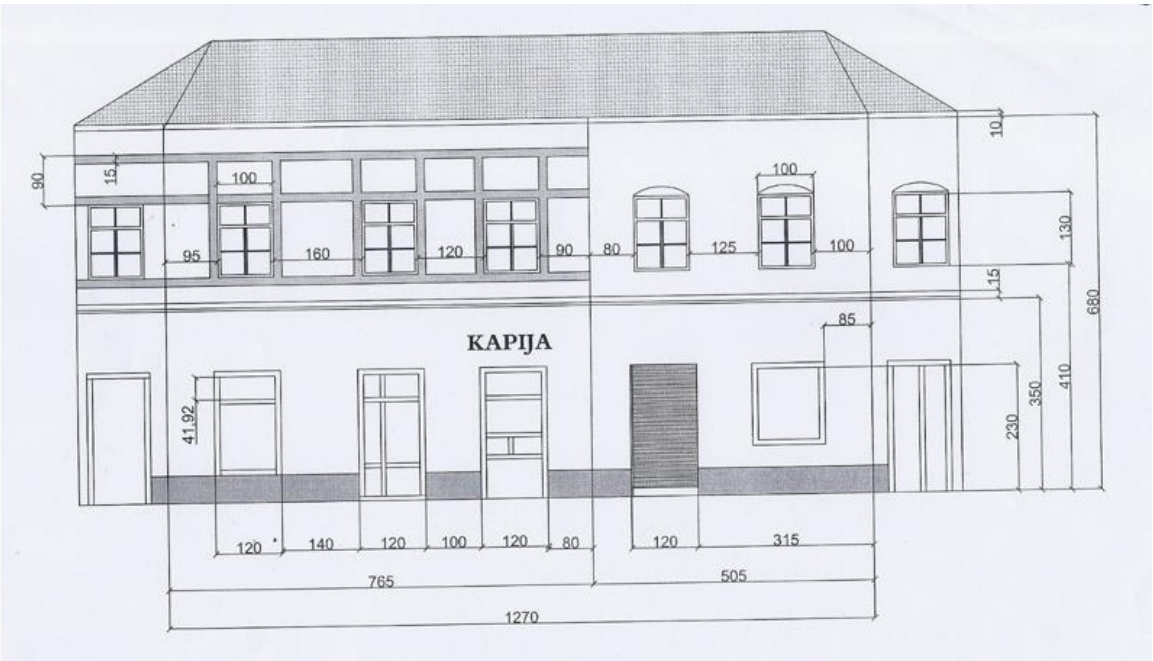


Measurements of Samoizbor reconstructed building – 3D laser scan

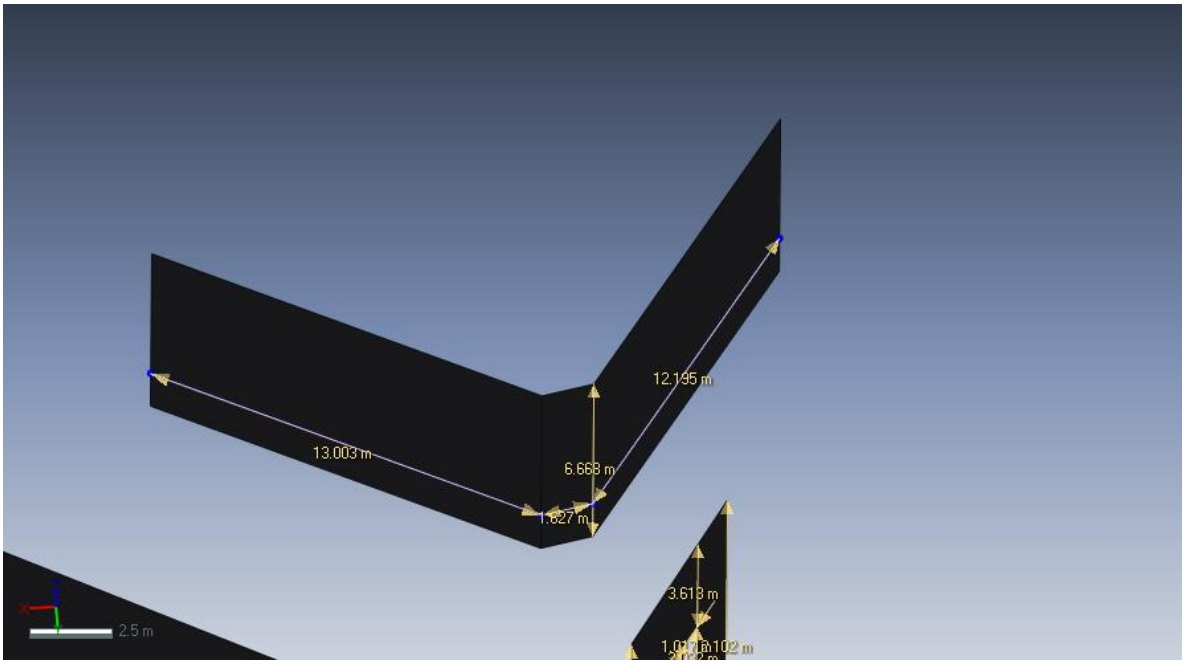
Samoizbor building – Southwestern facade

Samoizbor building –Western face

E. Kapija building



Drawing of Kapija building- Northwest facade

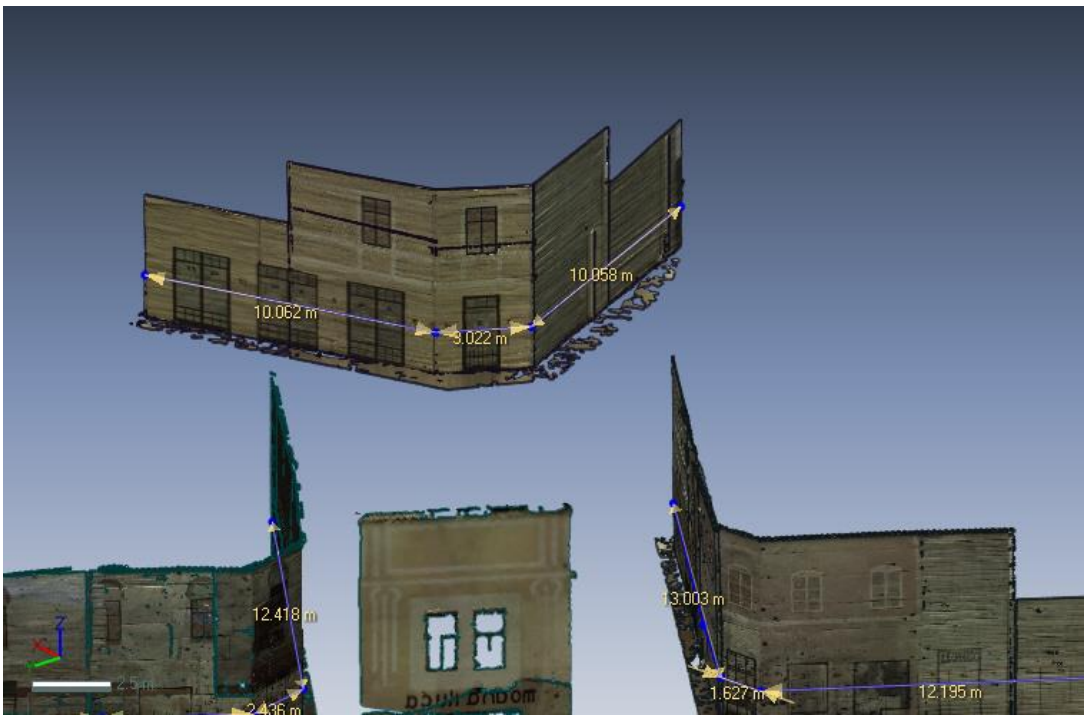


Measurements of reconstructed Kapija building Northwest & Northeast facades using 3D laser scan

Reconstructed Kapija building – northeast façade – in direction of the square

F. Reconstructed Kapija Caffe building

Measurements of reconstructed building using 3D scanning technique



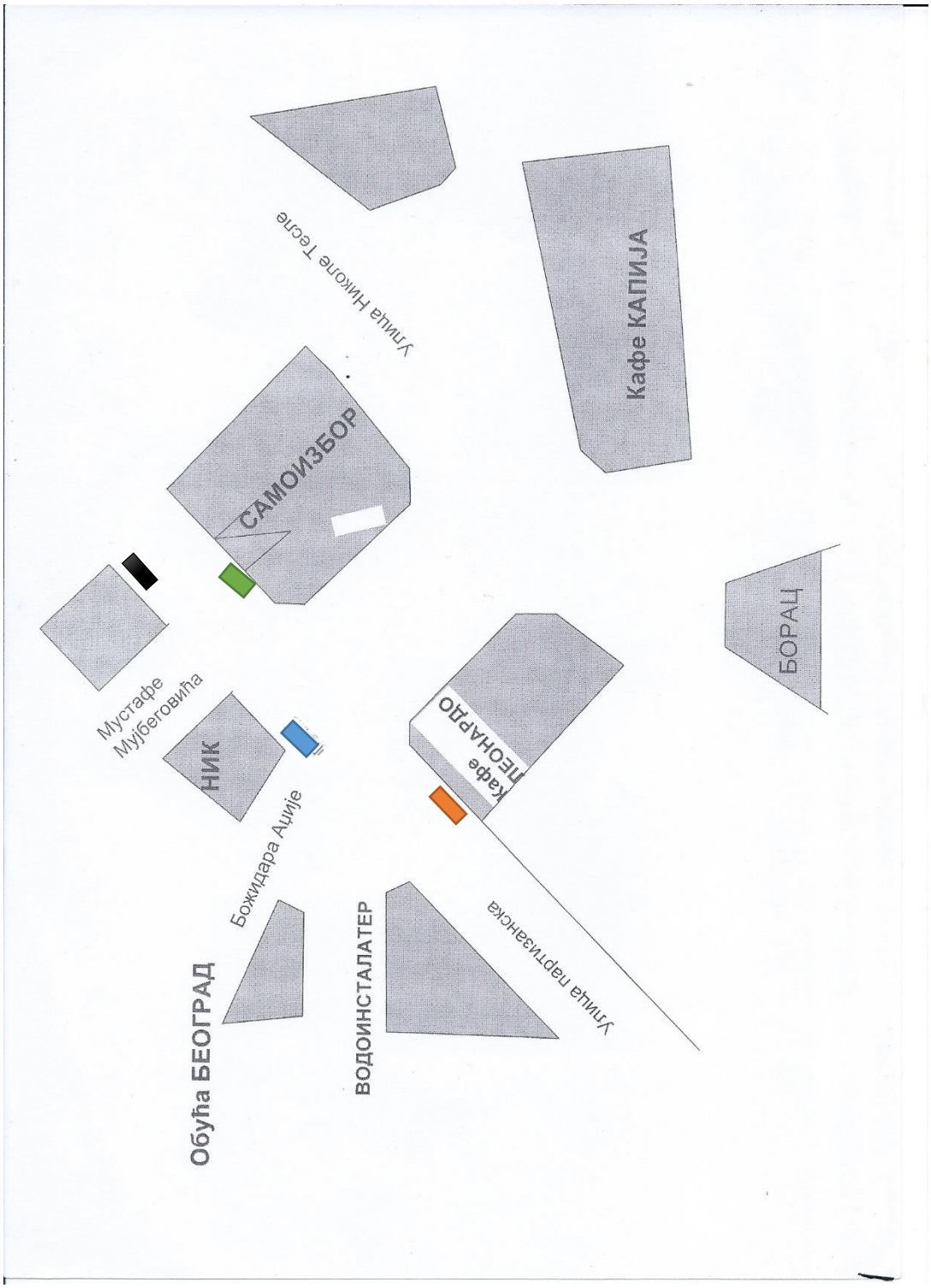
Chapter G Description of Test No. 1

A. General: test No. 1 was conducted on 10.02.2016.

This test was conducted according to the scenario detailed in Dr. Zecevic's opinion.

For the purpose of the test vehicles and human figures were placed in the square according to their location at the Tuzla site based on photos, video and evidence forwarded to the author

B. The vehicles and their location



Four vehicles were placed at the test site:

1. Golf MK-1 vehicle identical to the original vehicle that was near the explosion site. The vehicle was placed 47 cm from the wall of the NIK building, with its front at a distance of 1.30 m from the southeast corner of the building.
   The vehicle was placed such that it was partially parked on the sidewalk, as indicated in Dr. Zecevic's opinion.

2. Vehicle no. 2 was located near the Northwest wall of the Kapija building, near the entrance to Caffe Leonardo.

3. Vehicle no. 3 was placed near Caffe Gulam.

4. Vehicle no. 4 was placed at a distance of 12.5 m from the corner of the building north of the NIK building, adjacent to the building.

C. Location of the human figures

Thirty-nine human figures made of two-layer wood covered with a thin sheet of tin. The height of the figures was about 1.80 m for a male figure and about 1.65 m for a female figure. The figures placed at the test site were only those of victims whose location was known, and based on testimony of survivors as well as photographs and video. The figures were numbered and cataloged according to their original number that appeared in the pathology reports. Details regarding the location of the figures are presented in Appendix 2.
The following is a table indicating the simulated casualties (killed), their serial number, name and location.

No.	Casualty No.	Casualty Name	Casualty Location
1	31	Mehmedovic Edin	Caffe Leonardo
2	12	Dapo Amir	Caffe Leonardo
3	59	Hrustanovic Hasan	North corner of Kapija building
4	27	Mehanovic Sulejman	North corner of Kapija building
5	28	Kurbasic Damir	Between Golf vehicle and Kapija building
6	13	Duzel Amir	Caffe Leonardo behind vehicle
7	48	Markovic Nenad	Western corner of Samoizbor building
8	6	Mustacevic Saban	Adjacent, behind Golf vehicle
9	39	Mujic Samir	Behind Golf vehicle and Kapija building
10	18	Vukovic Mustafa	North corner of Kapija building
11	35	Bosnjakovic ilvana	Corner of NIK building
12	63	Milic Adrijana	Western corner of Samoizbor building
13	30	Nuhanovic Selma	Western corner of Samoizbor building
14	57	Kurbegovic Vanja	Western corner of Samoizbor building
15	37	Rosic Jasminko	Western corner of Samoizbor building
16	54	Ponjavic Ruzmir	Corner of building north of NIK building
17	61	Causevic Selma	Western corner of Samoizbor building
18	62	Mujanovic Nest	Western corner of Samoizbor building
19	5	Marinovic Pera	In front of Kapija building façade facing the square
20	25	Hodzic Nedim	Western corner of Samoizbor building
21	58	Stojicic Jelena	Caffe Gulam
22	64	Cirak Samir	Near Caffe Gulam
23	4	Ramic Fahrudin	Caffe Gulam
24	49	Hakic Hamdija	Kapija building façade facing the square

25	26	Boric Indira	Kapija building façade facing the square
26	29	Tadic Ilinka	Kapija building façade facing the square
27	50	Szjepanovic Savo	Façade Caffe Kapija
28	40	Rahmani Raif	Façade Caffe Kapija
29	3	Senad Hasanovic	Facade NIK building
30	36	Alispahic Admir	Façade NIK building
31	60	Hadzic Ago	Between vehicle and face of Samoizbor building
32	43	Joguncic Mujbasic Azur	Behind Golf vehicle
33	71	Ninic Dijana	Caffe Gulam
34	24	Kalesic Sandro	Caffe Gulam
35	23	Slijepcevic Asim	North corner of Kapija building
36	44	Vantic Azur	West corner of Samoizbor building
37	19	Hujrudoic Adnan	In front of vehicle near face of Samoizbor building
38	XX	XX	Corner of NIK building near figure No. 35
39	XXX	XXX	Between vehicle and face of Samoizbor building near figure 60
40	XXXX	XXXX	Near figure No. 39

Remark: The Human Figure sign with the letter "X" represents extra human figures, which are not included among the known causalities and used for testing explosion effects in specific areas.

D. Location of figures at test site

Samoizbor West corner

In front of Nik Building

Kapija building- Northeast facade

Caffe gulam –right side and corner of the northern building on the left

Kapija building North corner

Kapija caffe

Figures in the middle of Kapija square. On the right the projectile

A look at the reconstructed square from Southeast to Northwest

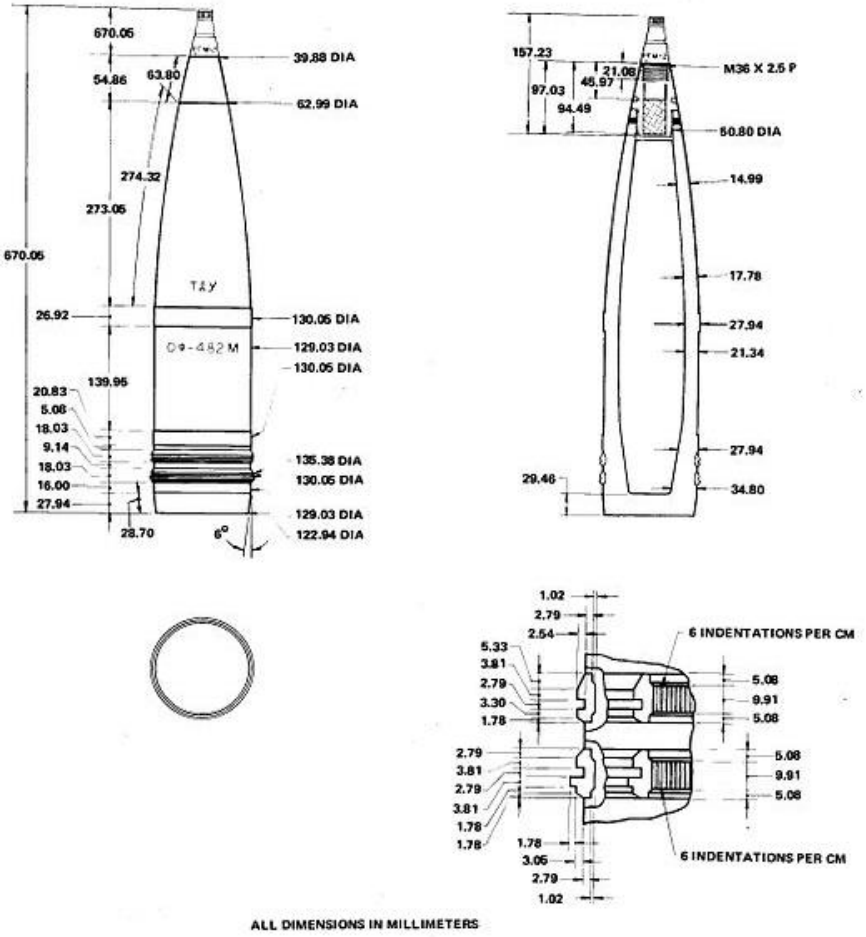
E. The projectile and its location

The projectile used for the test was an explosive projectile, type OF-482 M
The projectile was placed at the exact place and angle indicated in Dr. Zecevic's opinion according to the following calculations:
Location: at the intersection of the distance of 5.60 m from the northern face of the NIK building and 2.65 m from the southern face of the building.
This point was located at a distance of 40 cm from the side of the Golf vehicle. The vehicle was located, as noted, at a distance of 47 cm from the wall of the NIK building, with the front bumper 1.30 m from the southern face of the building.
The projectile azimuth was 271 degrees, and its angle towards the ground/angle of impact 62 degrees.
As seen in the following photographs, the base of the shell, according to Dr. Zecevic's data actually touches the side of the vehicle.


MAGNETIC BASE

Type of projectile shell:

An explosive projectile of type OF-482 M was used for the test.
To activate the shell an adapter containing a booster with 20 gr. H.E. was installed on the warhead that was activated remotely using an electric detonator, such that the explosion was in accordance with the circumstances of a shell explosion with a front percussion fuze.



Specifications of shell OF-482M
Shell data:
General length - 670.06 mm
Shell weight:
Full load - 59.1 kg
Small load – 51.8 kg
Overall projectile weight – 33.24 kg
High explosives weight – 3.64 kg
High explosives type – TNT

Note: this type of projectile was used in this test in light of Dr. Zecevic's determination that this was the shell that exploded in Kapija square.
Dr. Zecevic's conclusion was based on photographs and on shrapnel allegedly collected by others many years before he received the evidence. Thus, obviously Dr. Zecevic did not physically examine the evidence at the original explosion site. This fundamentally undermines his ability to unequivocally determine that a shell of this type exploded in the square. Additionally, Dr. Zecevic should have qualified his conclusion in light of these limitations.
Moreover, a proper investigation at an explosion site necessitates the use of methods and means of legal relevance required in order to prove a chain of evidence, among them:

- Documentation of location where findings were located.
- Numbering of findings
- Details of person(s) who collected the findings
- Collection of findings
- Preservation and storage of findings

None of these collection and documentation methods were carried out at the Kapija-Tuzla site.

F. Test results

1. General:

This section is divided into sub-sections.
Each sub-section includes a description of the damage caused to various objects as a result of the tests and a comparison to damages found at the original event site in Kapija square.

A. Effects on the Golf vehicle
B. Effects on the ground adjacent to the explosion center
C. Soot blackening
D. Shockwave effect
E. Effect on NIK building
F. Effects on human figures
G. Fragmentation effect on the buildings
H. Effects on the additional three vehicles

2. Comparison of effects on the Golf vehicle

As a result of the shell blast the front part of the vehicle was completely shattered.
The engine hood detached and landed near the vehicle, tearing the front right side of the vehicle.
Heavy damage was also caused to the vehicle engine and to the vehicle's front tires.
Shrapnel penetration was found on the roof of the vehicle and in the passenger compartment.
The vehicle itself was flung about 1 meter from its initial location, diagonally in the western direction while hitting the wall.

The minute of the shell explosion adjacent to the Golf vehicle – the photograph was taken from documentation of a rapid lens camera

Damage to the Golf vehicle as it was flung toward the west direction as a result of the shockwave– test result

Damage to Golf vehicle at the Tuzla event – without the shockwave effect. See also details in Chapter D pp. 33-39 above.

Summary:

Presumably, and without need of proof above and beyond the above photos, an unequivocal fundamental difference is evident between the explosion effect on the Golf vehicle in Kapija square on 25/05/1995 and the effect of the explosion in the test conducted at the test site on 10/02/2016 according to the scenario proposed by Dr. Zecevic– specifically, it is evident that the Golf vehicle in Kapija square was not flung from its place due to the shockwave effect of the explosion.

As a side note it can be said that the overall effects on the Golf vehicle in Kapija square point to a fragmentation effect and explosion pressure of an explosive device containing an amount of only tens of grams of high explosives and not 3.6 kg found in a 130 mm H.E. projectile.

3. **Comparison of effects on the road and the sidewalk adjacent to the explosion crater**
    1. Explosion crater – the explosion crater created on the granite stones in the square that paved the road at the test site - was shallow. The reason for the creation of this configuration of the explosion center was the fact that, due to obvious circumstances, the impact element created when a projectile hits the road was not included in the test. Such an impact can cause a certain amount penetration, albeit smaller, into the ground.

As a result of the shell explosion, debris of the bed found under the granite stones was repelled, some of it flung on the wall of the NIK building.

At the Kapija event, as described by Dr. Zecevic, the prosecution expert, the diameter of the explosion crater was 50 cm. However it can be deduced from analysis of the photos and video from the explosion location that the explosion crater was dug and widened by entities at the explosion site. In fact, for all intents and purposes it is impossible to determine with certainty its original size, although it is evident that the explosion crater was deeper and wider than that created in the test, as reflected in granite stones flung from their place to a location outside the explosion crater. The characteristics of this explosion crater indicate an explosion created at a point deeper than the road surface, spreading debris from base layer under the granite stones in the direction of the vehicle, and stone fragments in the direction of the NIK building.

Explosion crater before it was dug and changed

Explosion crater after it was dug

Comparison of debris from the explosion crater in the direction of the NIK building

Debris, stone fragments and heavy damage to the road and sidewalk in front of the NIK building – test result

Debris, minimal stone fragments on the sidewalk in front of the NIK building – original event

4. Comparison of Ground fragmentation spread on the road

Test results

As a result of the explosion a fragmentation spread was created on the road - its vertex at the explosion crater and its sides opening towards the angle of the projectile tilt. In other words-drawing a straight line from the fragmentation spread vertex – the explosion crater crosses the spread triangle in its center so that it is possible to accurately determine the direction of the projectile.

Shape and direction of the ground fragmentation spray points to the West (test results)

At the Kapija event the ground fragmentation spread was exactly in the opposite direction – towards the East

Conclusion

The test results reinforce the aforesaid in Chapter A of this report on the basis of which the direction of the fragmentation spread adjacent to the explosion center can be concluded. This can indicate the position of the projectile at the time of the explosion.

Thus, I can determine that the fundamental change and discrepancy between the directions of the ground fragmentation spread indicate completely different and even opposite directions of the explosion between the event at Tuzla and Dr. Zecevic's assumptions regarding the direction of the projectile.

5. Comparison of damage to sidewalk in front of the NIK building

As noted, in front of the NIK building there was a sidewalk 1.15 meters wide and about 5 cm higher than street level.
The curb was built of chiseled stone.

Test results

The curb stones found between the explosion crater and the NIK building shattered as a result of the test. In addition, deep and massive penetrating damage was found on the sidewalk surface.

The sidewalk before the explosion

The sidewalk immediately after the explosion

The sidewalk after cleaning – heavy damage can be seen to the curb stones and to the surface of the sidewalk itself.

Tuzla event

At the Tuzla event hardly any significant damage is evident on the sidewalk and the road in front of the NIK building opposite the explosion center.

6. NIK building - comparison of explosion damage
Test results

Damage to exterior walls

Fragmentation damage on NIK building walls – from fast camera film

Two sites of fragmentation damage were found on the building's exterior walls.
The first site - 17 places of fragmentation damage were found on the northern side of the NIK building façade, most of them up to about 2.50 meters height. Another fragment was found in the area between the store doorframe and the frames of the upper windows.

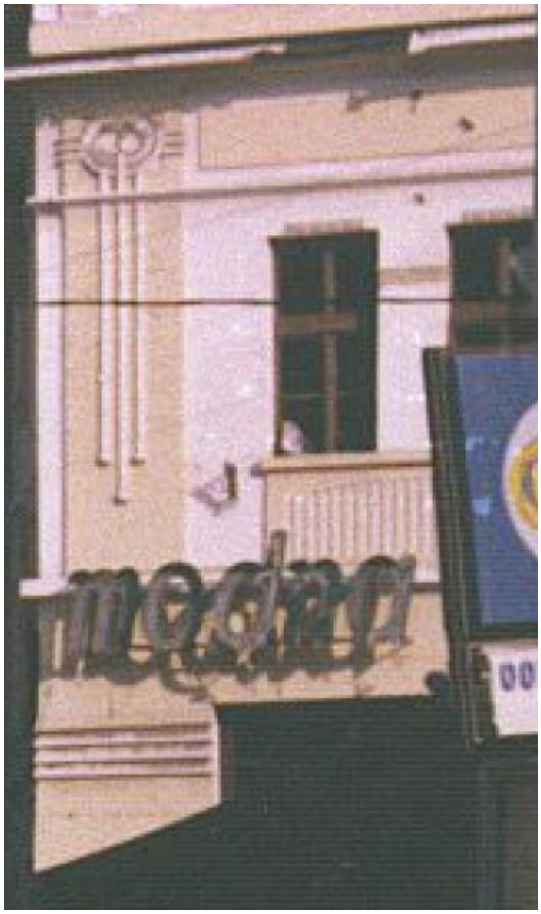
Façade wall of Kapija building

The second – along the southern wall of the NIK building façade, 2 points of fragmentation damage were found – at the bottom of the wall opposite the explosion area.

Part of the façade wall found adjacent to the explosion center – test result

The same part – Kapija event - fragmentation damage and explosion pressure are not evident

On the upper part of the wall, at a height between 3.20-6.00 meters, 8 fragmens were found, most of them in a straight line about 0.5 meters from the southern side of the building



At the Kapija event - fragmentation damages were not found on the side of the building, only 4 places of fragmentation damage at the center of the building façade, at ae height of about 10 m.

Summary:
The characteristics of the damage on the façade walls of the NIK building indicate fundamental differences in the type of fragments, their quantity and the damage location.

Comparison table:

	Test	**Tuzla**
Northern section of façade wall	17 fragments, some indicating large fragments, at height of up to 2.5 meters	About 30 or more small fragments at height of up to 1.5 meters + soot blackening
Lower southern section of façade wall	Fragmentation damage + soot blackening + debris	No effect
Upper southern section of façade wall	8 fragments at height between 3.20-6.00 meters	No damage
Center section of building facade	1 fragment at 3.5 m height .	4 fragments at the center of the wall at height of 10 m

7. Interior damage of the NIK building

Here as well, there is a fundamental difference between the test results and the Tuzla event. In the test, general destruction was caused to the storefront and to the items in the store, with the items displayed at the front of the store repelled backwards into the store, broken and shattered. However in the Tuzla event fundamental damage was not evident to the shop window – the wooden frame remained in its place, slightly covered with soot, the mannequins remained standing, and no damage was evident on the mannequins clothing. Minor damage was caused to the storefront sunshade found above the clothing store.

NIK building façade at the test site

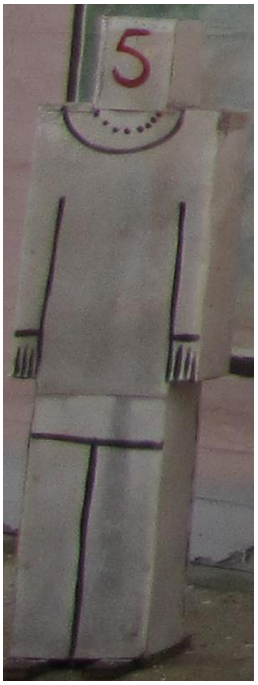
Test results

Façade of clothing store – NIK building in Kapija square – after the explosion

8. Effects on human figures

Two dimensions of the test results regarding the human figures are presented:
The first – photos of human figures, each figure after it was hit, in addition to a table detailing the main effects found with respect to every human figure.
The second – a condition diagram divided into 4 effect areas according to the damage caused to the human figures.


XXXX


5


26


37


30


39


18


28


61

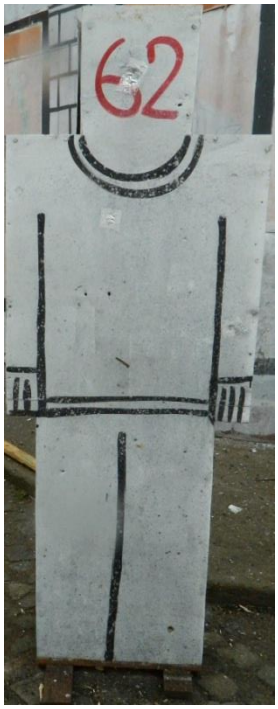

63


25


44


67


19


62


6


54


35
XX


71


64


24


58


49


29


48


43


XXX


60


50


40

Summary Table of Effects on Human Figures

Serial No.	Figure No.	Remained standing after explosion	Fragmentation	Soot blackening	Fracture/Shattered
1	24	+	+	-	-
2	71	+	-	-	-
3	5	+	-	-	-
4	4	+	+	-	-
5	54	+	+	-	-
6	35	-	+	+	Fracture
7	13	-	+	-	-
8	50	+	-	-	-
9	40	+	-	-	-
10	18	+	+	-	-
11	27	-	+	+	-
12	28	-	+	-	-
13	23	+	+	-	-
14	59	-	+	+	-
15	61	+	+	-	-
16	37	+	+	-	-
17	63	+	-	-	-
18	25	+	+	-	-
19	44	+	-	-	-
20	31	-	+	+	Fracture
21	3	-	+	+	Shattered
22	36	-	+	+	Shattered
23	29	+	-	-	-
24	49	+	+	-	-
25	26	+	-	-	-
26	5	+	-	-	-
27	58	+	-	-	-
28	48	+	+	-	-
29	43	+	+	-	-
30	6	-	+	+	-
31	12	-	+	-	-
32	39	-	+	+	-
33	30	-	+	+	-
34	62	+	+	-	-
35	19	+	+	-	-
36	57	+	+	+	-
37	60	+	+	-	-
38	64	+	-	-	-
39	XX	-	+	+	-
40	XXX	-	+	-	Fracture
41	XXXX	-	+	+	Fracture

Legend:

(-) – Negative

(+) Positive

Analysis of Findings

From among all the human figures used in the test, 2 figures were shattered (3 and 36) - those located in front of the NIK building.

In 4 figures – (xxxx, xxx, 31 and 35) fractures were found, caused from the impact of the blast wave.

6 additional figures (xx, 30, 39, 12, 6, 13) were flung to the ground as a result of the shockwave/blast wave.

Significant soot blackening was discerned on 12 figures (xx, xxxx, 57, 30, 39, 6, 36, 3, 31, 59, 27, 35).

The remaining test dummies, 29 all together, remained standing in their place.

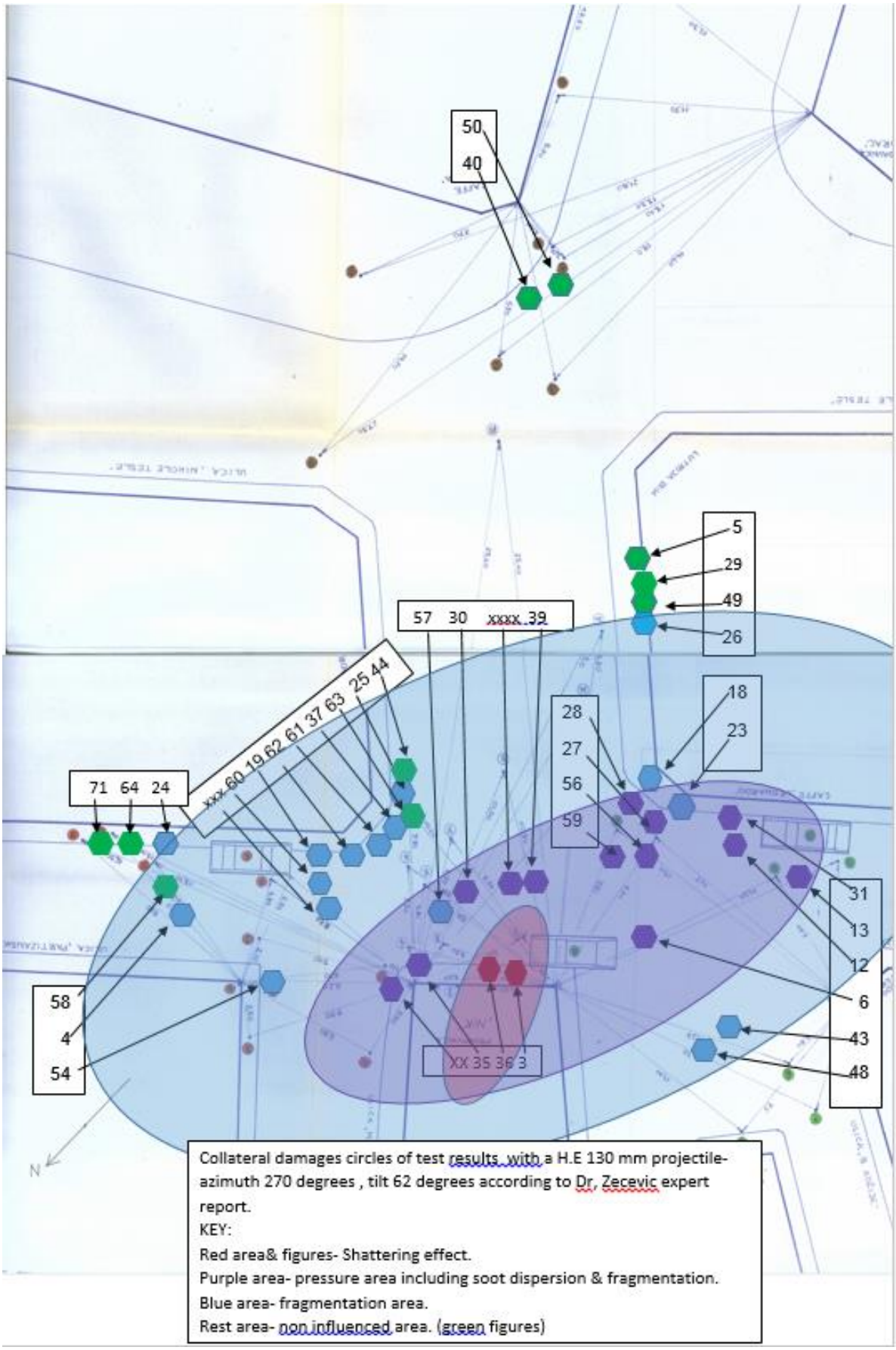
30 human figures, comprising 73% of all the figures, sustained injuries of varied severity from the fragmentation.

11 figures – 27% did not sustain any damage.

Analysis of the damage enables to draw a diagram of destruction/damage circles according to the level of damage caused the human figures.

The damage diagram allows for a visual examination of projectile effects according to the position determined by Dr. Zecevic.

.



Collateral damages circles of test results with a H.E 130 mm projectile- azimuth 270 degrees , tilt 62 degrees according to Dr. Zecevic expert report.

KEY:

Red area& figures- Shattering effect.

Purple area- pressure area including soot dispersion & fragmentation.

Blue area- fragmentation area.

Rest area- non influenced area. (green figures)

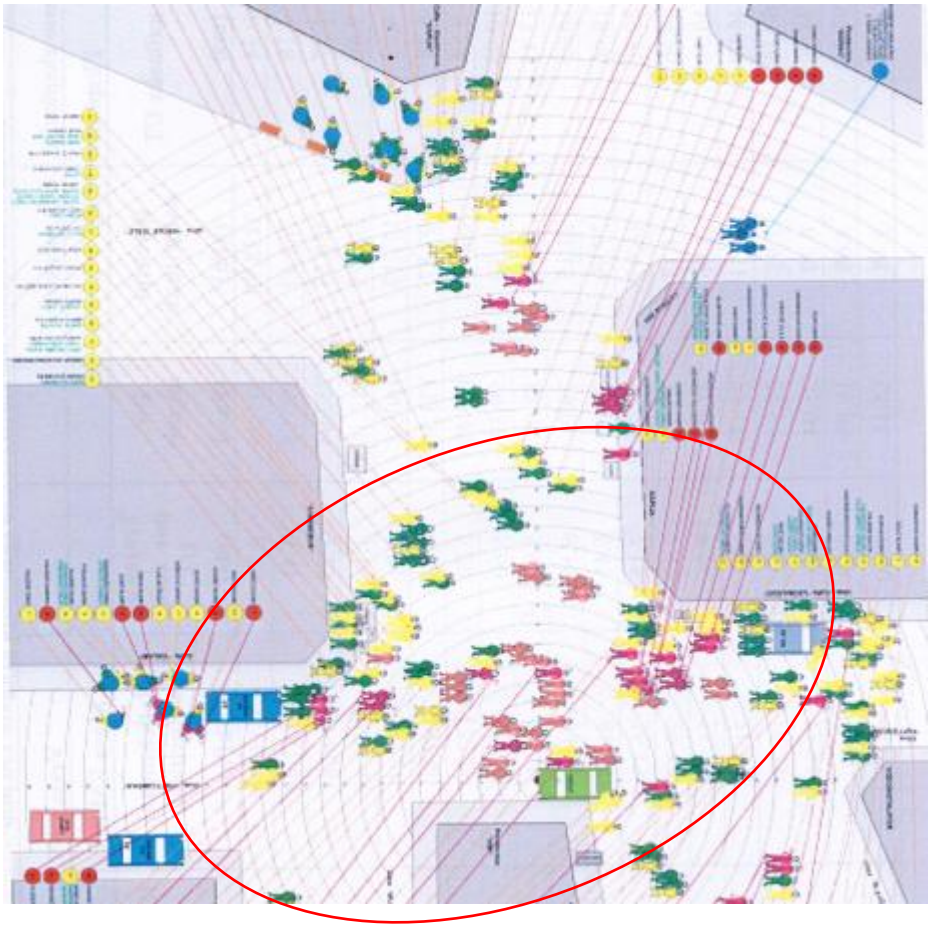
Dispersion of injured at the Kapija event:

As noted, 71 people were killed and about 240 were injured at the original event.

The location of those killed and wounded is marked on the following map, with respect to the persons whose place at the time of the explosion or after could be verified based on testimony, photos and video from the event arena.

There is a fundamental difference between the two casualty location maps - at the Tuzla event many were injured in the area between the center of the square and Caffe Kapija that is located at the eastern edge of the square.

The test results proved unequivocally that fragmentation hits in front of Caffe Kapija could not have been caused in that area with accordance to Dr. Zecevic determination of the projectile angle and azimuth , due to the fact that the projectile tilt angle causes the shell fragmentation to be shot upwards above the height of those present in that area. Moreover, photos of the casualties in this area of the square indicate that most of the injuries were sustained to the lower part of their body, which contradicts the test results.



A map representing the known and the estimated location of causalities in Tuzla on 25/05/1995.In circle, the area of damages to human figures in test No. 1 done with accordance of Dr. Zecevic expert opinion which left an unexplained causalities areas outside the damage area

9. Comparison of injuries to victims no. 3 and 36

There is special significance to the comparison between the results of the explosion on victims No. 3 (Hasanovic Senad) and No. 36 (Alispahic Admir), two policemen who, at the time of the explosion, stood in front of the NIK building, very near the Golf vehicle.

As a result of the explosion the 2 policemen were killed and their bodies remained on the sidewalk in front of the building, as shown in the photo.

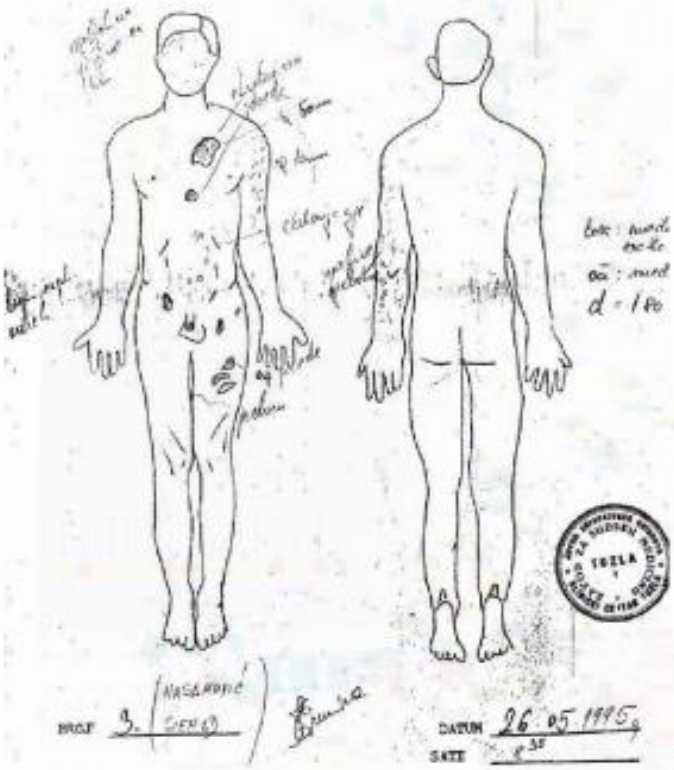
A pathological examination of the bodies produced the following results:

3. Senad Hasanović, son of Meša,

For this body in the records of the external investigation there is no year of birth. From an insight into other documents that are available, it is evident that he was born in 1969.

The corpse has length of about 180cm, short brown hair, chestnut brown iris of the eye.

In the description of the injuries were ascertained defects of the skin of the outside left [art of upper body, left arm and left leg that continues in depth with multiple fractures of the left femur. Injuries are visible on the schematic display and photographic documentation.



On the body of this person there are clearly visible injuries which are located on the front and left lateral side of the body. Injuries stretch from the shins all the way up to the head. In addition, injuries to the head and neck that are visible from the photographs are not described in the record, nor were they drawn in the schematic display of injuries.

In the area of the left upper arm and in the region of the left elbow is clearly a massive deposit of soot which again points to the great proximity to Center of Explosion. Soot is visible in the photograph also in the region of the left sleeve of the t-shirt.
The trousers give an impression that over the left trouser leg there are also deposits of soot. Soot is visible in the area of the front side of the left thigh, as the previous one, and the photograph that was extracted from the video.

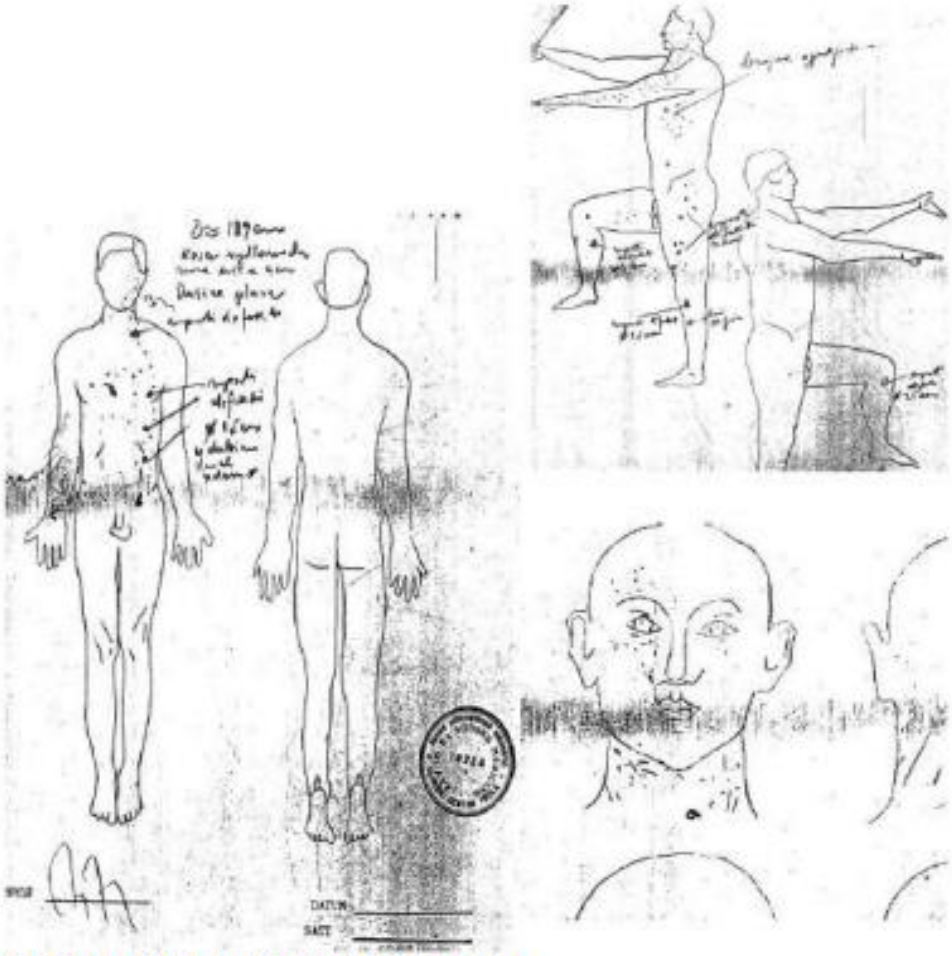
Based on previously conducted analysis of video that was made immediately after the critical event, it was found that this person was in the left front part of the car "Golf" at the entrance to the store "Nik", together with Admir Alispahić. It follows that he was located about 2.5 to 3 meters from explosion site. It is completely obvious that such violations do not correspond to injuries caused by 130mm artillery projectile explosion which explodes at 2-3 meters from the injured person.

36. ALISPAHIĆ ADMIR, son of Alija, born in 1971 from Tuzla

Dead body length of 189 cm, light brown straight hair which is 4 cm long, blue irises.

External inspection of the body of this person found the following injuries: injuries described as numerous small defects located on the left side of the trunk, the limbs and the inside of the right foot.

Schematic display of the recorded injuries and photographic documentation made during the performance of the external inspection were submitted for this individual.



Small defects listed in the records on external

The photos showing this body show visible soot located on the front side of the face and in the region of the left upper extremity. These deposits of soot are not described in the report on the external inspection of the dead body and were not found in the chart.

On the photo which is extracted from the video, it is obvious that this person at the moment of the event was wearing short-sleeve T-shirt so it is apparent that the soot in this case also was located on the uncovered parts of the body.

According to available data from the file, in the moment of explosion, this person was located at a distance of about 3 meters from the Center of Explosion.

An examination of the bodies indicates a large number of <u>small fragments</u> that caused damage along the length of the bodies –

In victim No. 36, from the knee along the lateral left side, including the front and the head. In victim no. 3 – injuries are concentrated on the lateral left side of the chest and on the head. On both bodies there are signs of soot blackening on areas that were not covered by clothes.

Photos of the event arena and of the victims taken at the hospital show that **the clothes of the dead remained intact and were not torn as a result of the explosion**.

As noted, in the test, 2 human figures were placed in the locations of victims 3 and 36.

The effects on the human figures in the test were completely different from the effects at the Tuzla event.

The "legs" of the human figures were completely shattered. The chest area sustained significant injuries as reflected in a massive breaking of the wooden human figures. Extensive soot was found on human figure no. 3.

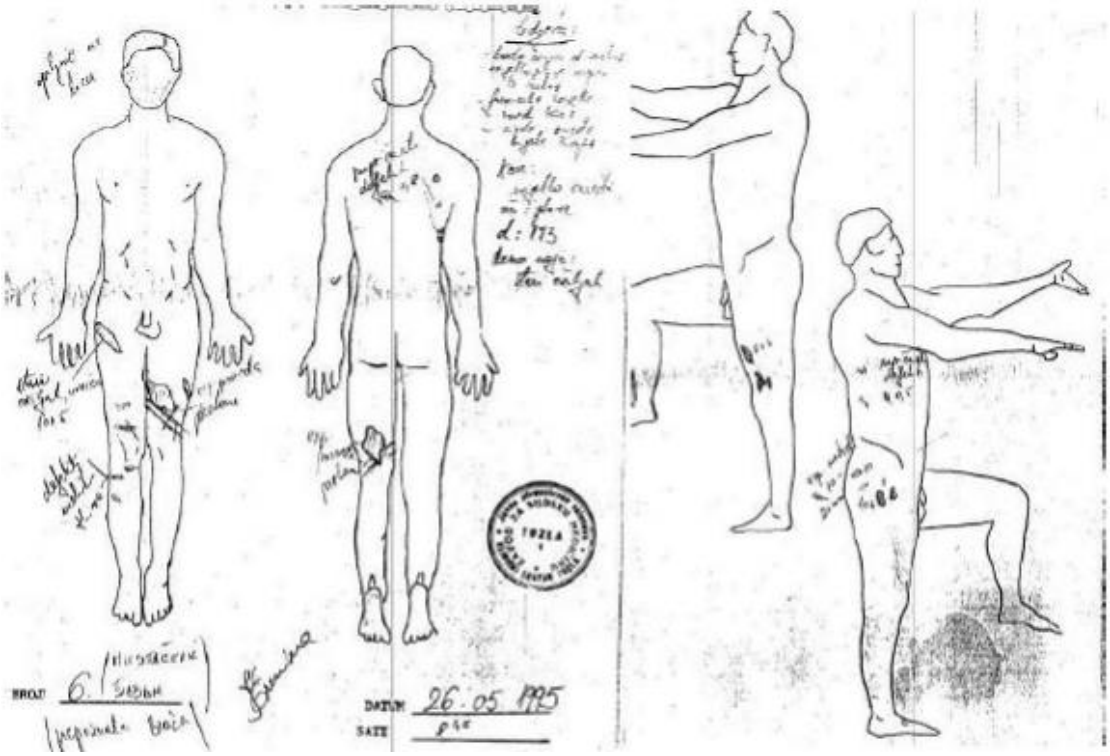
Remains of human figure no. 3

Remains of human figure no. 36

<u>These 2 victims were located very close to the explosion site (2-3 meters), as determined in Dr. Zecevic's opinion.</u>

There appears to be a fundamental difference between the two scenarios. In the test the human figures were exposed to a very strong shattering effect of the explosives of the 130 mm projectile. On the other hand, in the original event it is evident that the victims were injured from a weapon with a much weaker explosive effect that produces smaller and more numerous fragmentation (like the explosion effect of a hand grenade or something similar), that contains explosives with a negative oxygen balance, such as TNT and that produces extensive soot darkening. Otherwise, **the explosion center was farther than the location claimed.**

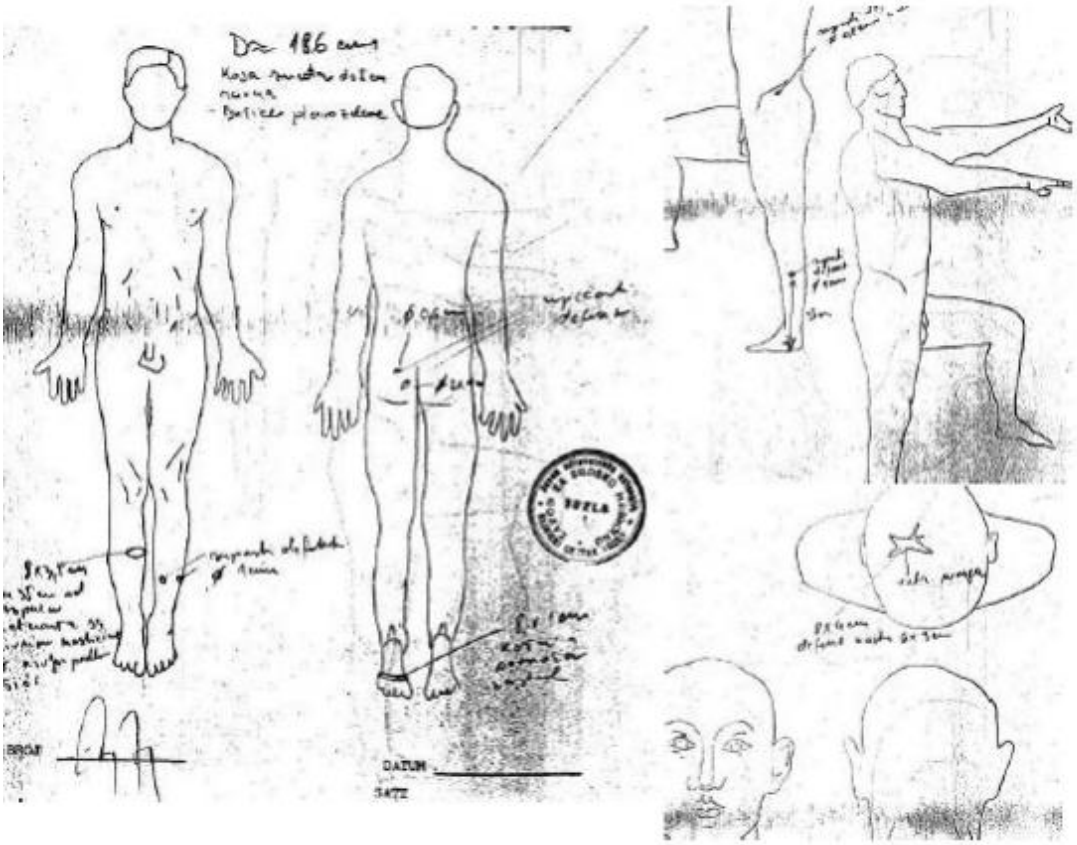
Comparison between the injuries of additional victims at Kapija square and the human figures in the test



No. 6 – soot darkening on the face and right pant leg

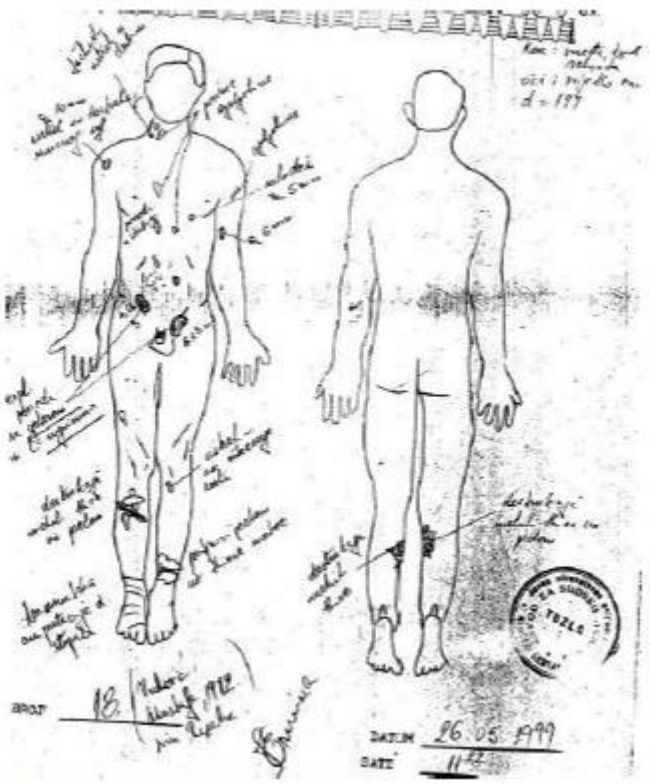
Fragmentation in the upper part, in the lower part – no soot darkening

.



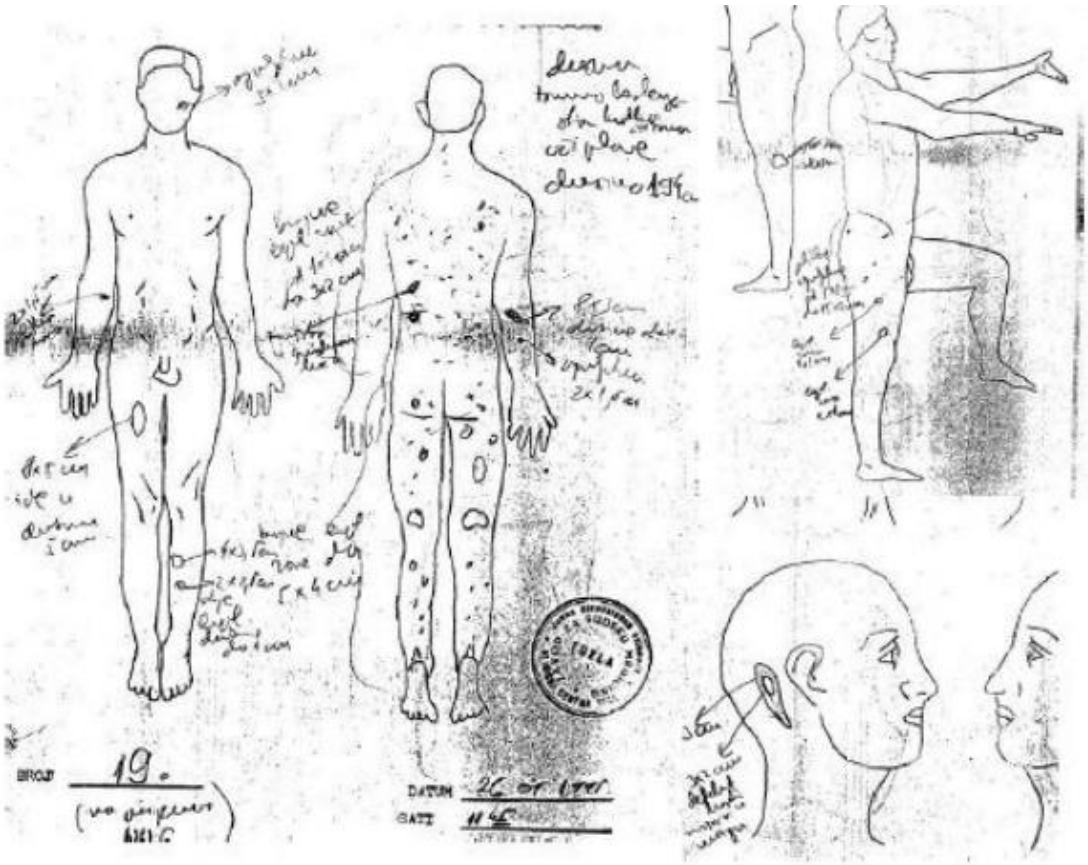
No. 12 – little fragmentation

Massive fragmentation on the entire surface of the human figure



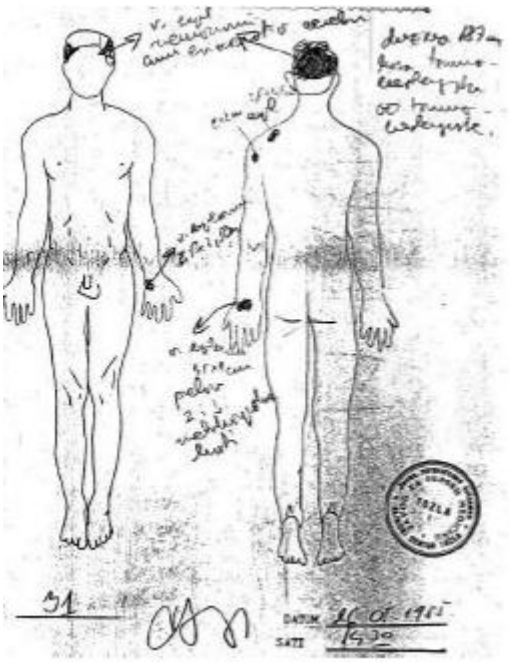
No. 18 – extensive fragmentation spread over the victim's entire body

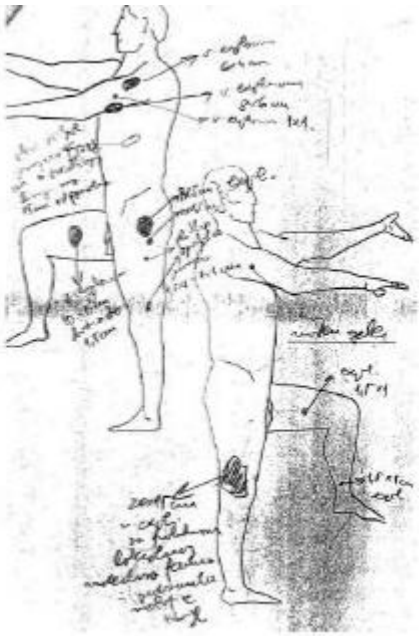
Single fragment in the abdomen area



No. 19 – fragmentation over the victim's entire body

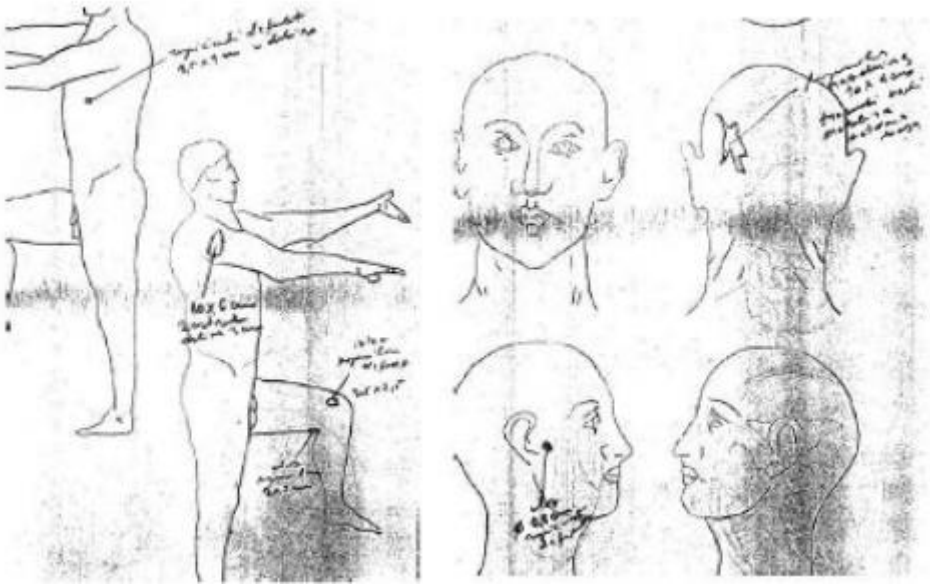
Little fragmentation - concentrated in the lower part of the human figure





No. 31 – no soot darkening, fragmentation on several of the victim's organs

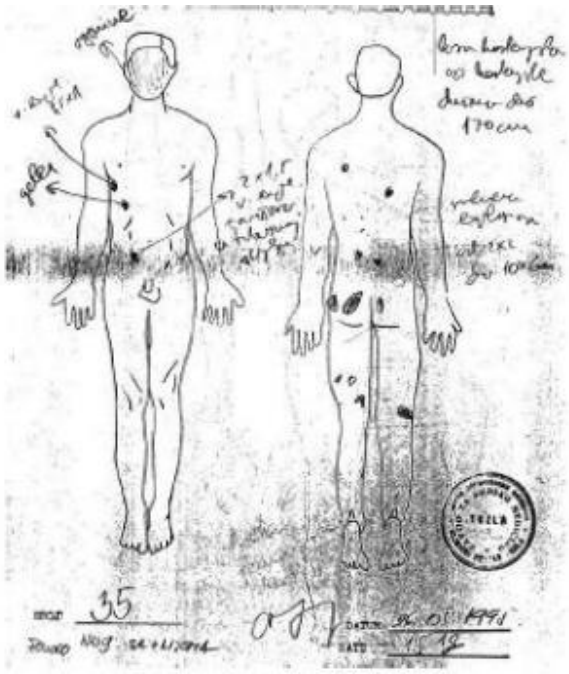
Strong shockwave effect on the human figure, massive soot darkening on the upper part, penetration wounds in the chest area.

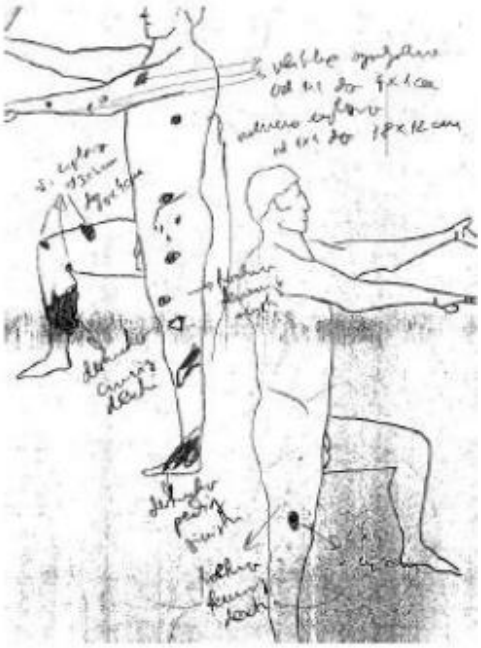


No. 27

Strong shockwave effect on the human figure, massive soot darkening on the lower part of the body and extensive fragment penetration on the entire area of the human figure.

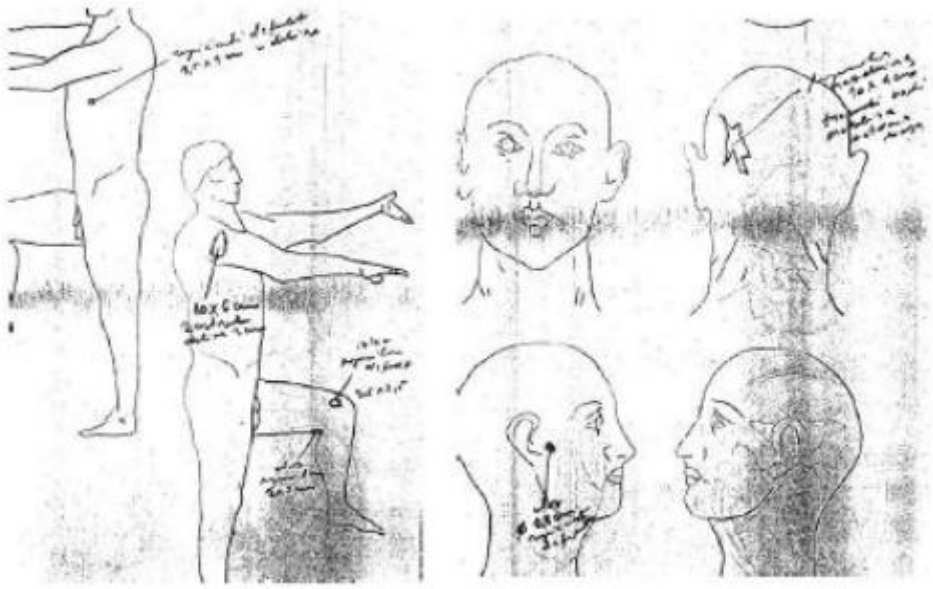
Victim No. 39



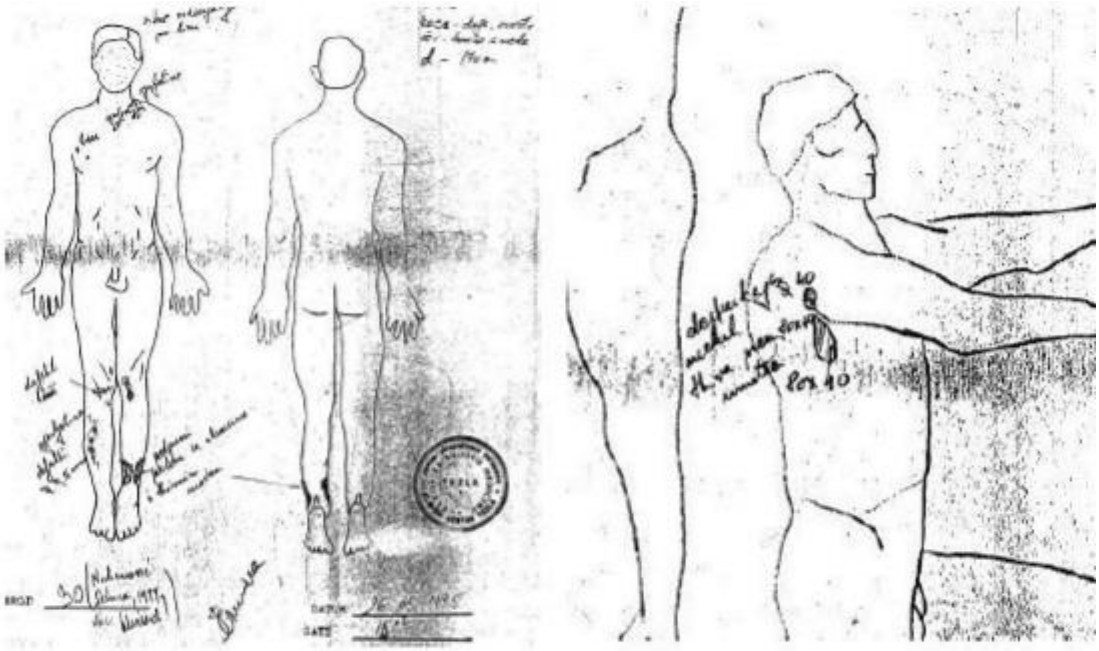


No. 35 – soot darkening on all unclothed areas and massive fragmentation on the legs

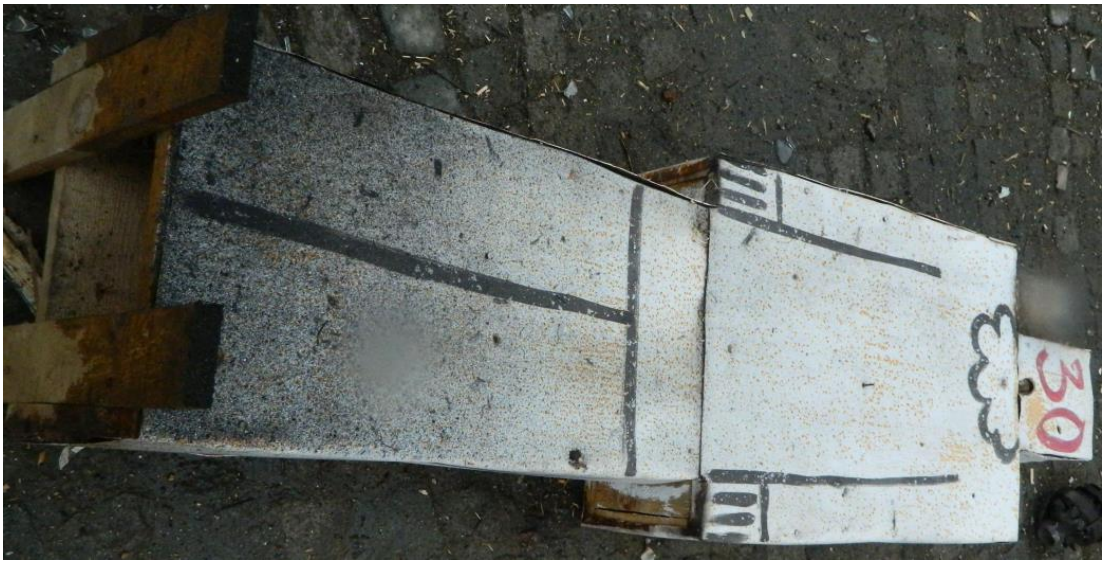
Soot darkening – little and small fragmentation in upper part



No. 27



No. 30



10. Damage to buildings - comparison between test results and event at Kapija square

At the Tuzla event the characteristics of the fragmentation on the walls of the buildings were investigated based on photographs from the event site. Analysis of the photographs demonstrates the differences between the main characteristics of fragmentation on the walls of the buildings when comparing the two events:

A. Kapija building -

Kapija event

Northeast façade – the building façade suffered massive fragmentation on the entire area, with the fragmentation particularly concentrated in the lower part of the wall. The photos show that most of the fragmentation is found up to a height of about 3 m., with most of the fragmentation concentrated in the lower part of the wall.

There is fragmentation damage in the upper part of the wall, however there is less and it is spread over the entire upper part of the wall.

Test results –

In the test fragmentation reached a maximum range of 16 m on the northeast wall at a height of 1.80 m. In the upper part of the building wall a diagonal fragment was found at an angle of about 60 degrees that ends at a distance of about 20 m, where it rises above the roof of the building.

.

B. Corner of Kapija building and the west wall

The Tuzla event – extensive fragmentation was concentrated in the upper part above the door, and on the Northwest wall on the second floor, up to a distance of about 12 m from the explosion center.

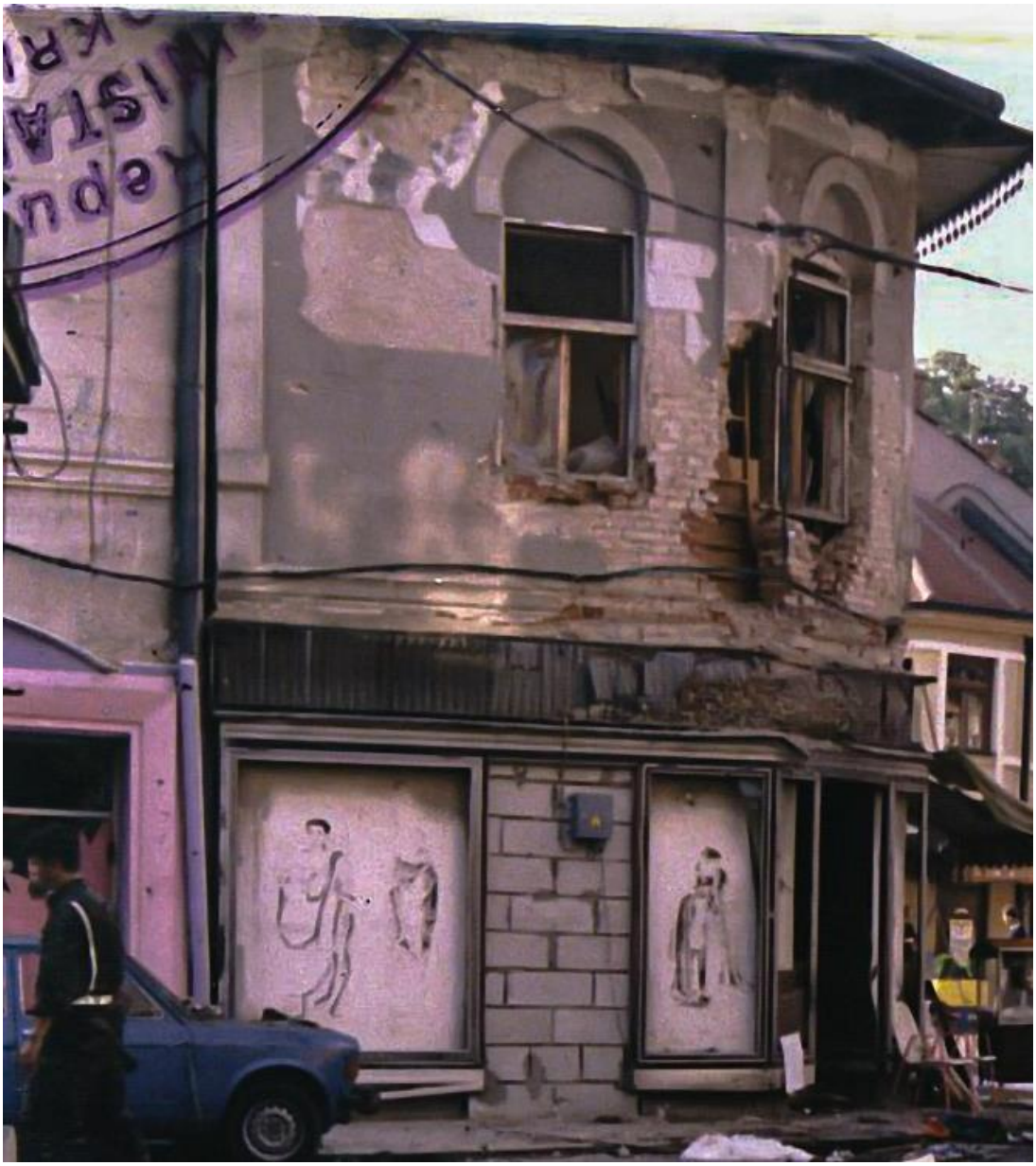
On the bottom part there is something resembling elongated scratches on the wall ending opposite the front of the vehicle, at a distance of about 11 m from the claimed explosion crater. Next to it, on the wooden door, there are relatively many fragments spread on the area of the door.

In the experiment – few fragments – most of them concentrated at a height of up to 3 m

C. Samoizbor building

Kapija event

West corner - one of the most significant differences between the original event and the test was found in this area. While in the Tuzla event there was a high concentration of fragments in the lower part, and this was also where the highest number of victims was found, **in the test the large number of fragments was concentrated in the upper part of the wall**, while fragmentation in the lower part was relatively small. This difference in the location of the fragmentation spread is of great significance with respect to the positioning the shell. Furthermore, it is evident that this fundamental difference unequivocally indicates that there is no congruence between the position of the shell according to Dr Zecevic and the results of the explosion in Tuzla.



West corner of the building – Kapija event

Samizbor West corner- lower section

Samizbor West corner- test results- most fragment hits are on the upper part

Face of the building – test results

D. Samoizbor building – Southeast facade

Notice the large amount of fragmentation that created holes in the store window sunshade and shattering of the glasses

Samoizbor – Southeast façade – test – no fragmentation

E. Caffe Kapija

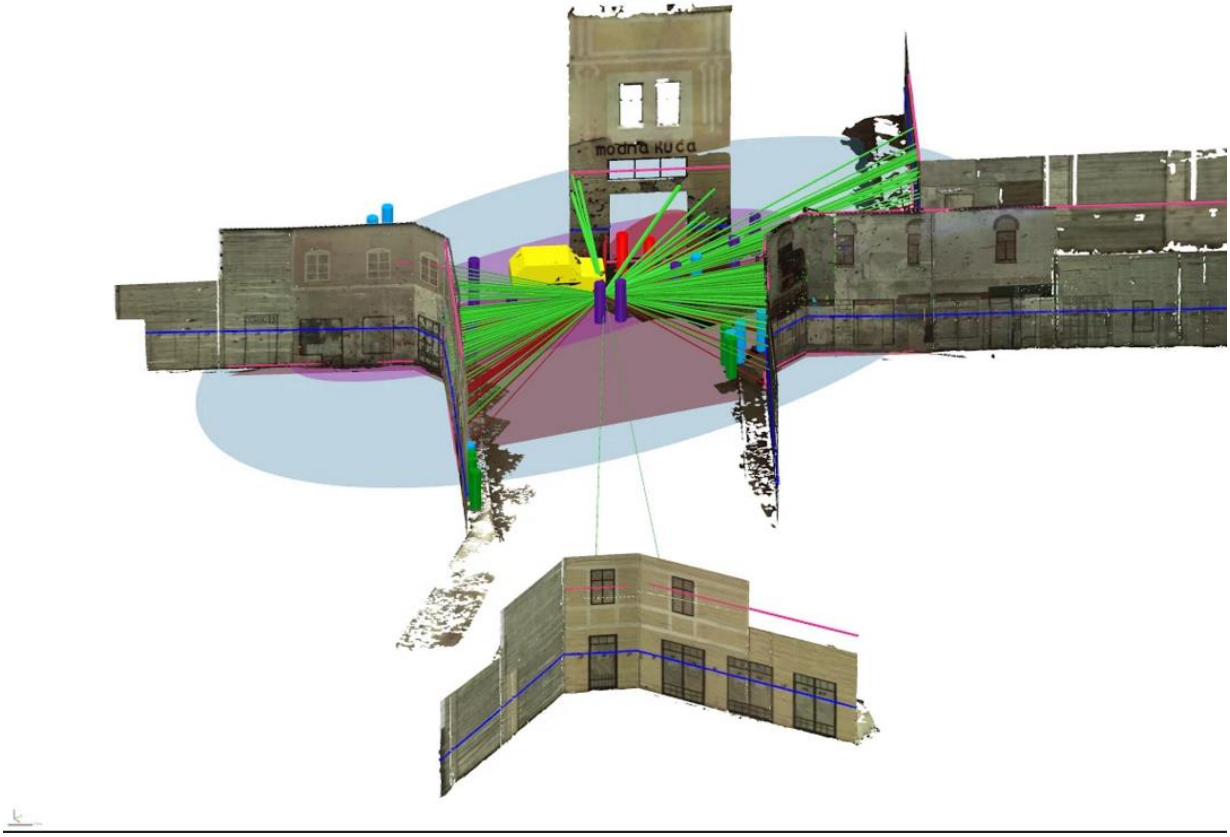
Photos of the original event do not allow for in-depth examination of the number of fragments that damaged the building and the location of the damage. Several places of fragment of damage can are shown in the photo..

Test results

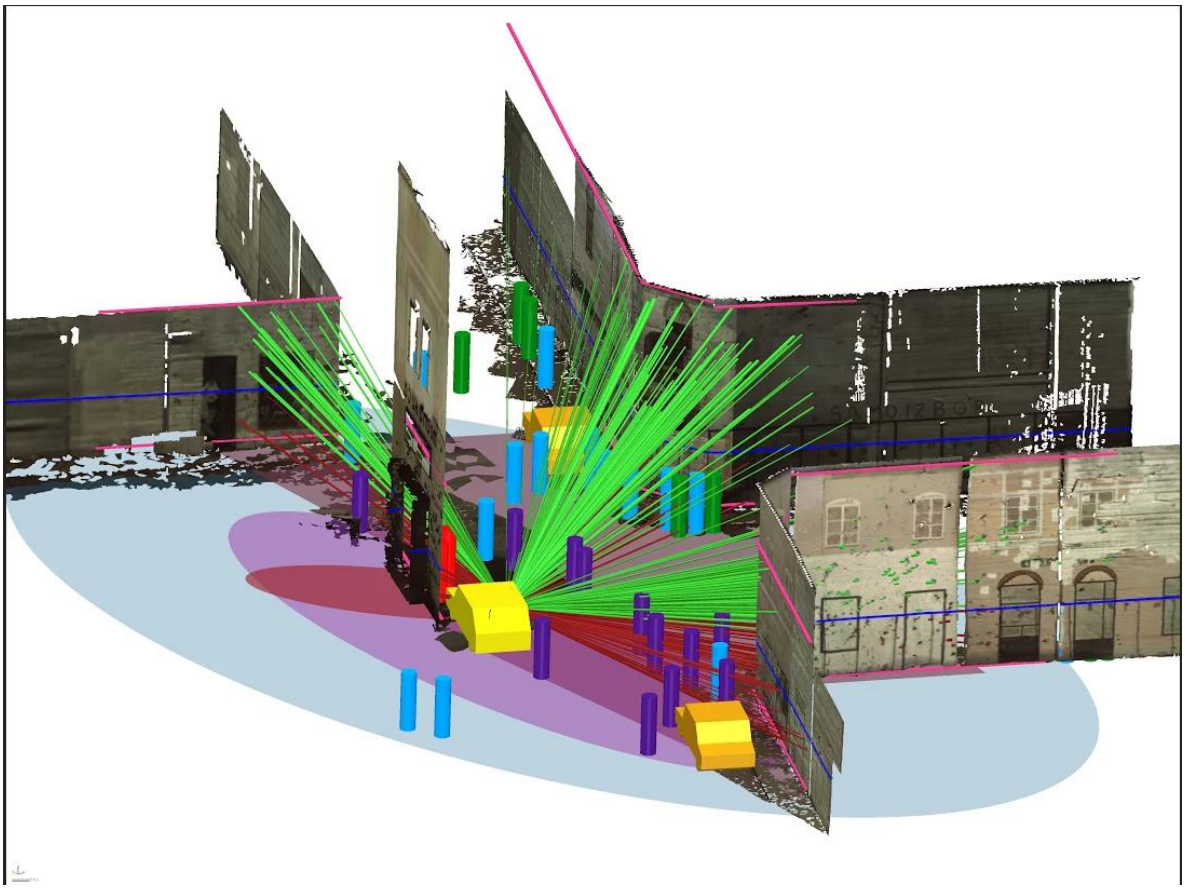
In the test only three effective fragments were found in the southern part of the Northwest wall of the building – facing the square

3D scanning results of test No. 1- Total fragmentation hits on human figures and buildings

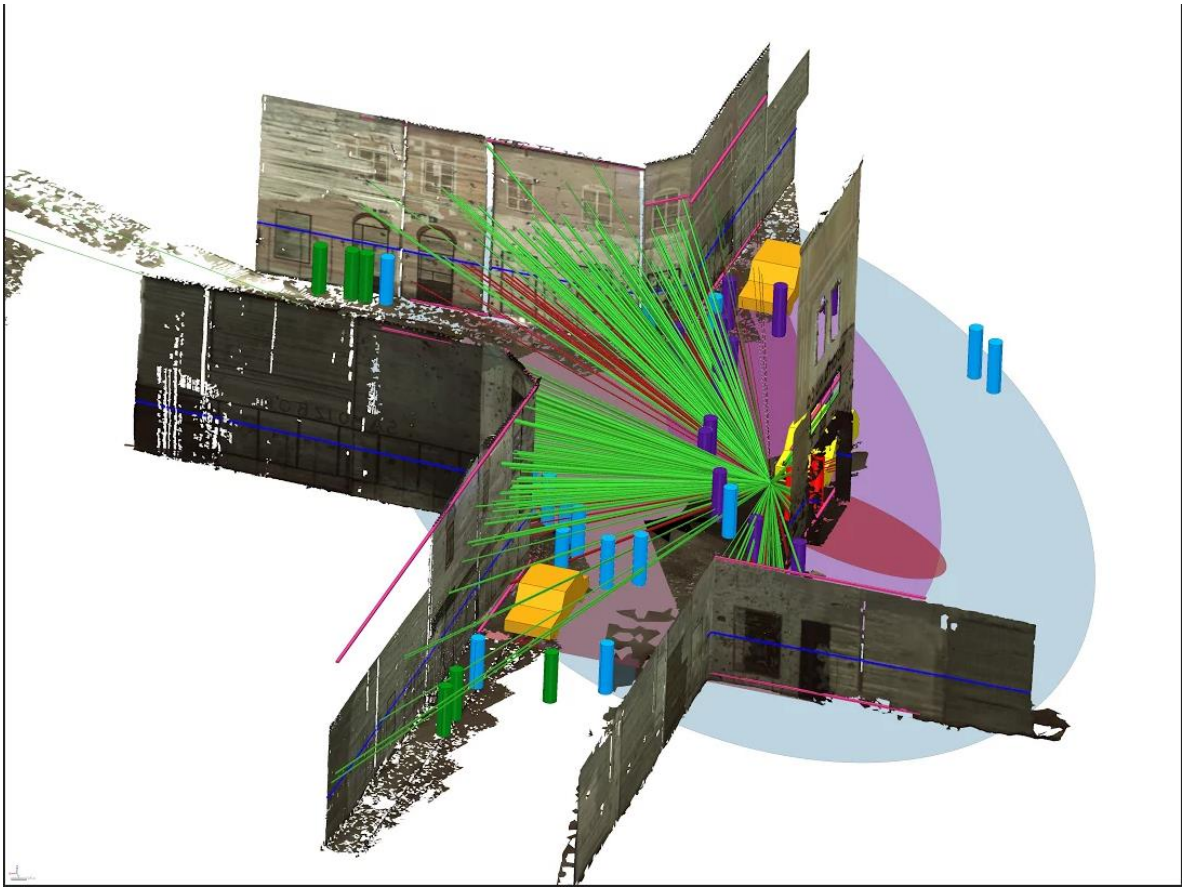
Red beams represents hits up to 1.80 m.
Green beams represents hits above 1.80 m.
Tube represent location of human figures according to table above
Red mean- area and damages due to shattering effect of explosion/
Purple means- area and damages due to blast and shock wave including fragmentation
Blue means- area and damages due to fragmentation only
Green means- safe area/



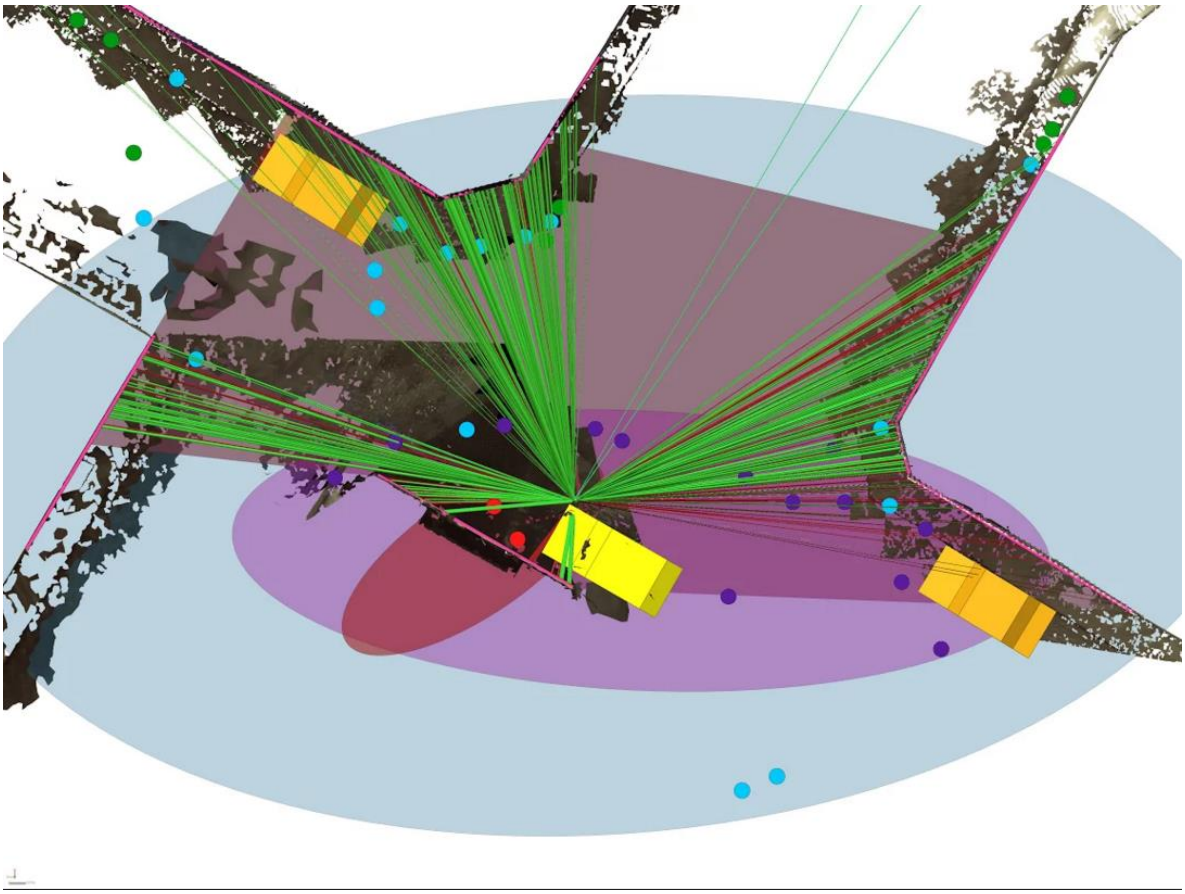
A look from Southeast to Northwest



Test results- a look from southwest to northeast



A look from general direction-North to South



Test results an aerial look

PART III

Chapter H – Test No. 2 – 11.02.2016

A. **General**: test no. 2 was conducted as a feasibility test aimed at resolving the contradictions between the results of the test conducted on 10.02.2016, based as noted on the findings of Dr. Zecevic, and the findings at the explosion site in Tuzla on 25.05.1995.

Test no. 2 examined the following:

A. Explosion effect on the vehicle
B. Explosion effect on the NIK building
C. Effect of the damage caused by the granite stones adjacent to the explosion center
D. Explosion center
E. Explosion effect on the human figures
F. Fragmentation effect on the buildings in the square

B. **How the test was conducted**

The test was conducted at the test site at the Technical Test Center facility where test no. 1 was also conducted.
Fragmentation damage from test no. 1 was marked in blue to distinguish it from the new damage from test no. 2.
The NIK building was renovated and its façade rebuilt.
3 vehicles were placed at the site, in the identical location as in test no. 1.
The target vehicle was placed adjacent to the sidewalk curb, at a distance of 1.15 m from the wall of the NIK building.
37 human figures were placed at the site, in the same position and locations as in test no. 1.
The shell: 130 mm OF 482-M.
Shell location – placed 40 cm from the corner of the vehicle at a 50 degree angle and at an azimuth of 120 degrees relative to the direction of the vehicle.
The shell fuze was inserted about 5 cm between the granite stones, imitating the energetic penetration of the shell before it exploded.

C. Test results

1. Effects on vehicles

The front of the car on its right side was torn as a result of the explosion pressure.
Heavy damage was caused to the vehicle engine, the chassis and to the internal engine components.
The engine hood was torn from its place and flung several meters towards the east, and perforated as a result of the fragmentation.
The vehicle doors opened from the internal pressure created.
The vehicle windows were shattered.
Fragmentation penetrated from the front right door.
Fragmentation penetrated into the passenger compartment and the vehicle roof.
The vehicle was flung towards the wall and found 73 cm from the wall, and was also flung about 1 meter backwards.


APO

2. Damage inside the NIK building

As a result of the explosion the display window of the store was flung into the building and broke. The window mannequins were flung into the store and broke. The store interior was filled with stone fragments, dirt and a great deal of dust. This is contrary to the original Tuzla event as noted above.

3. Explosion crater

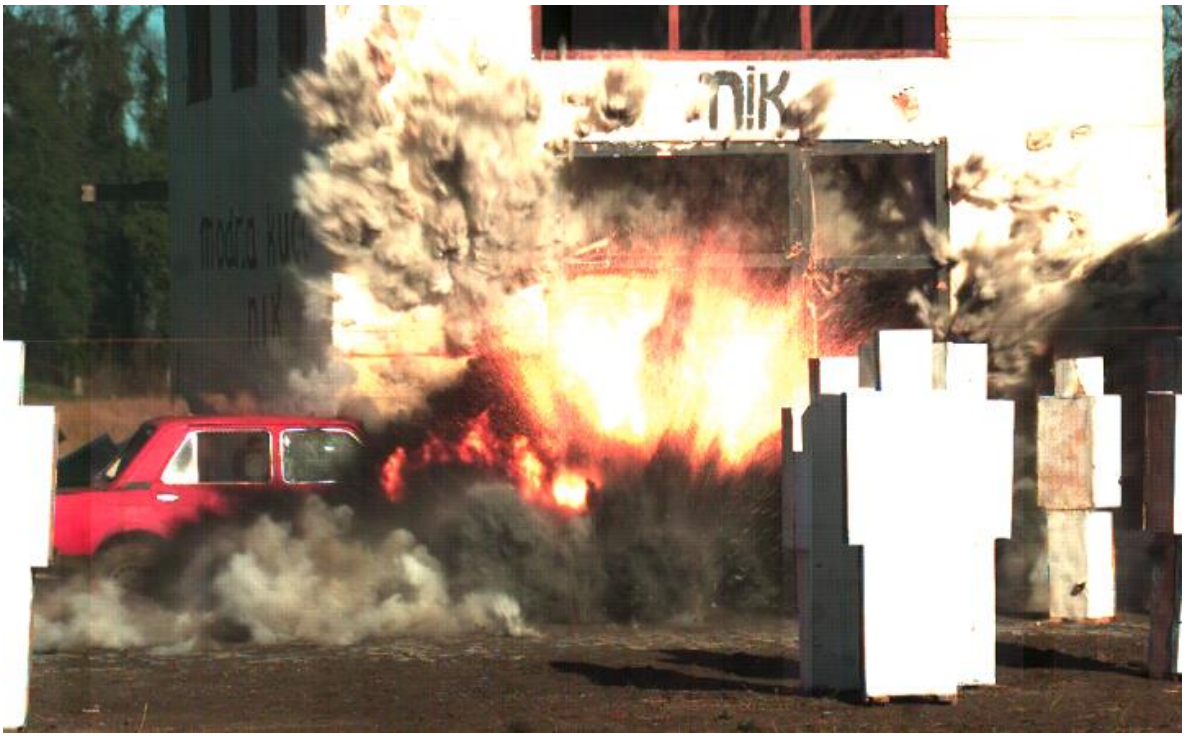
Although the shell fuze was inserted between the granite stones, the explosion crater was shallow.

4. Ground fragmentation spread

A ground fragmentation spread was created on the granite stones spreading from the explosion crater in the southeast direction – according to the azimuth of the projectile positioning.

The characteristics of the direction and fragmentation spread are compatible with the characteristics of the fragmentation spread created in the original event at Kapija.

A much larger quantity of dust and stone fragments produced in the test no. 2 compared to test no. 1 because of a massive impact of fragmentation on the granite stones that pave the road. This fragmentation significantly increased the number of casualties as a result of secondary fragmentation and ricochets of metal fragments. This is substantiated in the injuries caused to human figures no. 1 – 6 that were placed in the square area between the Samoizbor building and the Kapija building, along the demarcation line of the maximum fragmentation range in test no. 1.

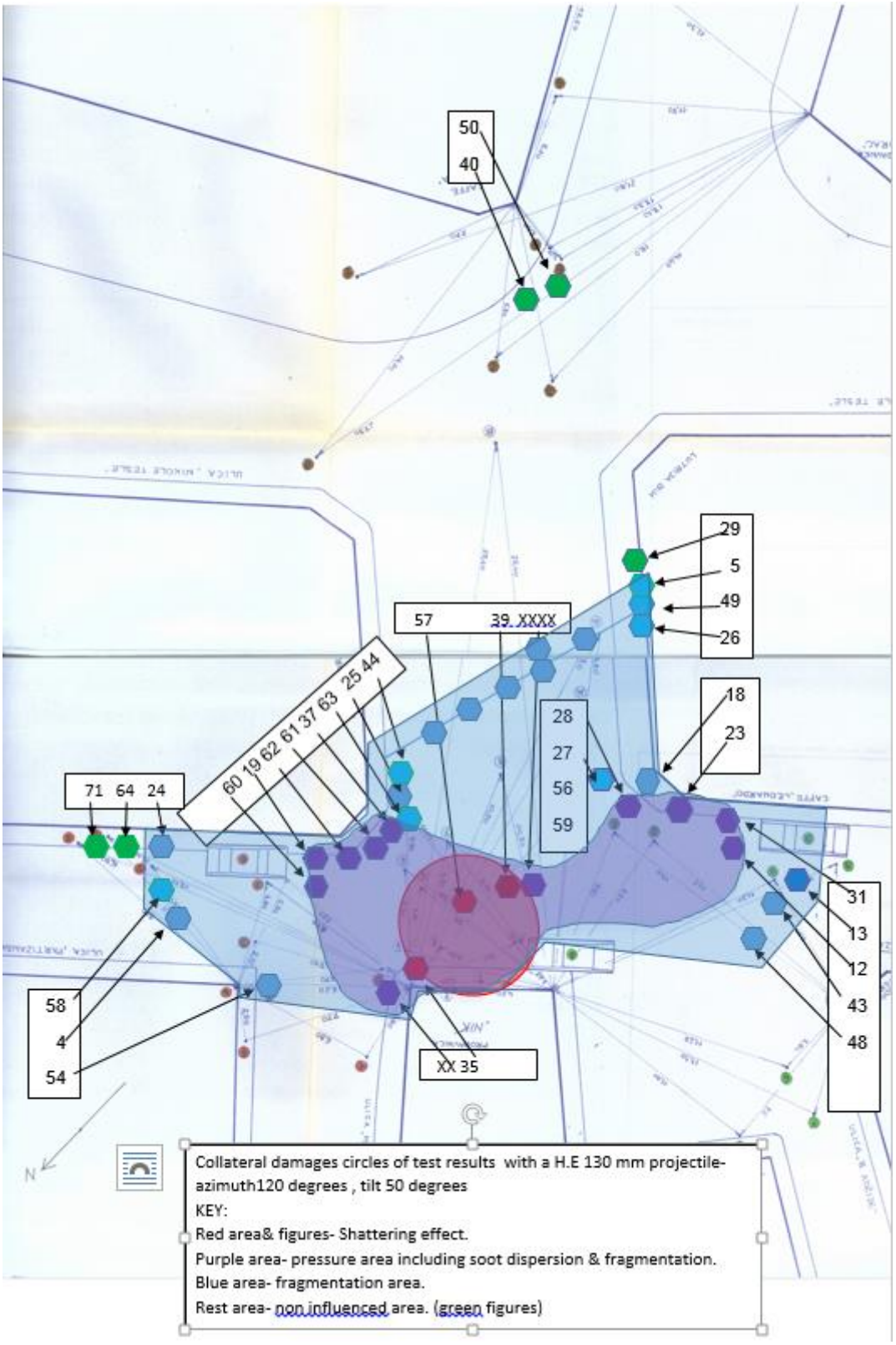


Photograph of rapid camera towards the Northwest- pay attention to the dust arising because of the fragmentation hits on the granite stones.

5. NIK building

The building façade was damaged as a result of the explosion from a very large number of fragments concentrated on the building walls up to the height of about 3.5 meters. This is contrary to the Kapija event and to results of the aforementioned results of test no. 1.

6. Injuries to human figures



Summary Table of Effects on Human Figures

Serial No.	Figure No.	Remained standing after explosion	Fragmentation	Soot blackening	Fracture/Shattered
1	54	+	+	-	-
2	19	+	+	-	-
3	62	+	+	-	-
4	4	+	+	-	-
5	61	-	+	-	+
6	58	+	+	-	-
7	24	+	+	-	-
8	62	+	-	-	-
9	63	+	+	-	-
10	25	+	+	-	-
11	43	+	+	-	-
12	X1	+	+	-	-
13	49	+	+	-	-
14	29	+	-	-	-
15	X2	+	+	-	-
16	X3	+	+	-	-
17	4	+	+	-	-
18	X5	+	+	-	-
19	37	-	+	+	-
20	62	-	+	-	+
21	19	-	+	-	+
22	60	-	+	-	+
23	33	-	+	+	+
24	57	-	+	+	+
25	18	+	+	-	-
26	23	-	+	-	+
27	27	+	+	-	-
28	X6	+	+	-	-
29	13	+	+	-	-
30	XXXX	-	+	-	+
31	39	-	+	+	+
32	31	-	+	-	+
33	12	-	+	-	+
34	5	+	+	-	-
35	XX	-	+	+	+
36	40	+	-	-	-
37	50	+	-	-	-

Remark: The Human Figure sign with the letter "X" represents extra human figures, which are not included among the known causalities and used for testing explosion effects in specific areas.

Analysis of the findings

From among all 37 human figures used in the test, 2 figures broke (39 and 57). The figures were located about 3 meters from the explosion center in the eastern direction, due to the explosion impact that flung it to the ground as a result of the shockwave.

In 11 figures – (XX, 61, 62, 19, 60, 33, 23, XXXX, 31, 12, 37) fractures were found, as a result of the shockwave that flung them to the ground, yet there was no evidence of breaking.

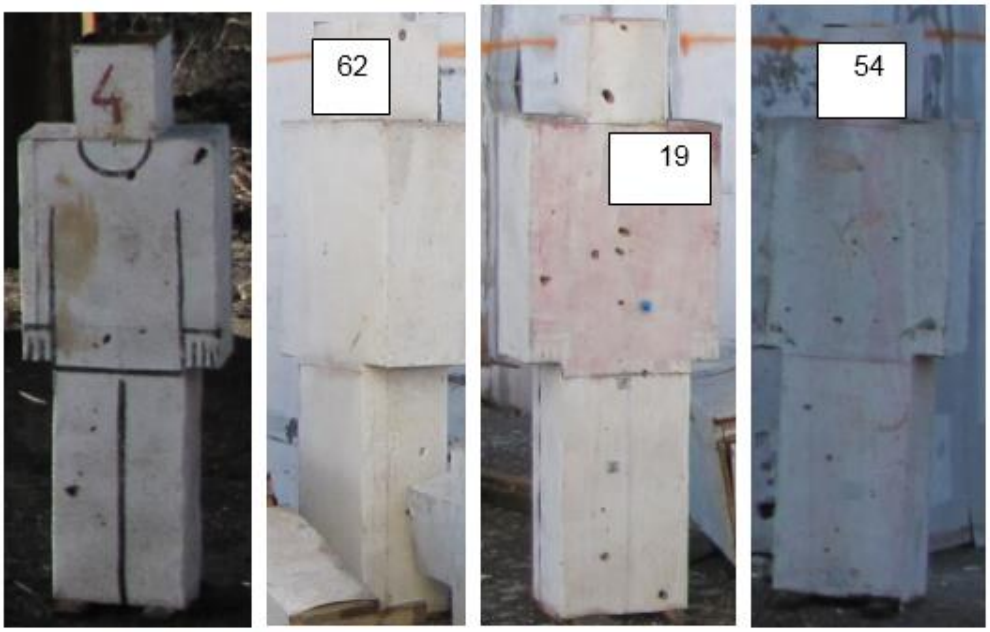
Significant soot blackening was found on 5 figures (XX, 37, 33, 57 39).

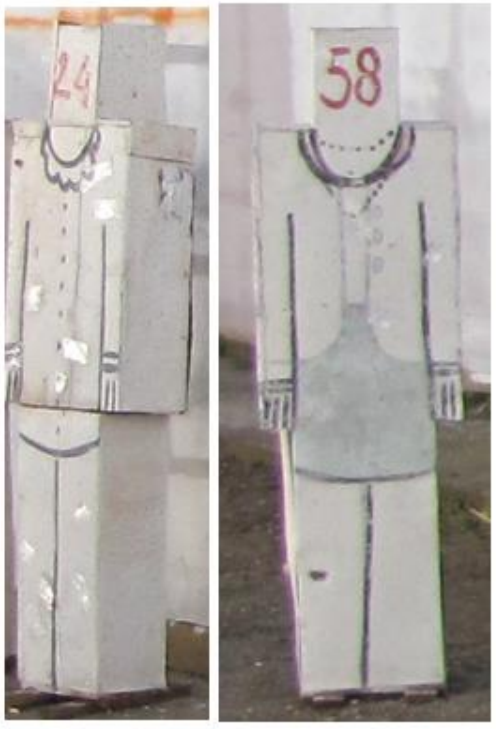
The remaining human figures, 29 all together, remained standing in their place.

32 human figures comprising 86% of all the figures, sustained injuries of varied severity from the fragmentation.

4 figures – 14% did not sustain any injuries.

7. Photos of injuries on the human figures






43


25


63


64


2


29


49


No. 1
Left to
figure 44


37


4,5


3


60


19


62


18


57


33


27


23


XXXX


13


x6


39


12


31


xx


5


50


49


29


40

8. Damage to buildings

Damage was found on all buildings in the square.

Details of the effective ground fragmentation are presented in the following chapter.

Two massive concentrations of fragmentation were found in this test:

The first – fragmentation was found on the upper part of the area of the West corner of the Samoizbor building, although to a lesser extent than in test no. 1.

In blue – damage from test no. 1 and no. 2 – on the face side of the Samoizbor building

Kapija North corner – it can be seen that in this area, dispersion and amount of fragmentation in test no. 1 (in blue) are significantly greater in higher areas, while most fragmentation in test no. 2 (black color) is concentrated in the lower part of the building.

9. Effective fragmentation damage on the buildings – test comparison

Effective fragmentation was defined as fragmentation that penetrated the metal-covered wooden sheets used as walls of the buildings in the reconstructed square.

It was determined that this would be considered a penetrating fragmentation up to 1.80 meters from the ground, in accordance with the fragmentation model proposed by Dr. Zecevic in his opinion. See his diagrams on this subject below.

Dr. Zecevic calculations indicate that the effective fragmentation range in the direction of the front of the projectile is 16 meters, and 14 meters towards the back part of the projectile. Additionally, it can be deduced from Dr. Zecevic's data that at the point located 21 meters from the explosion center the fragmentation will be at least 5 meters above the ground.

To examine effective fragmentation in the two tests that were conducted, a line was drawn on the buildings in the square 1.80 meters from the ground, indicating the effective fragmentation height. This area was divided into 1 meter sections in order to analyze the damage on the buildings in terms of fragmentation density per section, and comparing it to Dr. Zecevic's calculations according to the analysis of the findings at the Tuzla event that occurred on 25.05.1995.

Division into sections on the walls in the test arena

Division into sections was as follows:

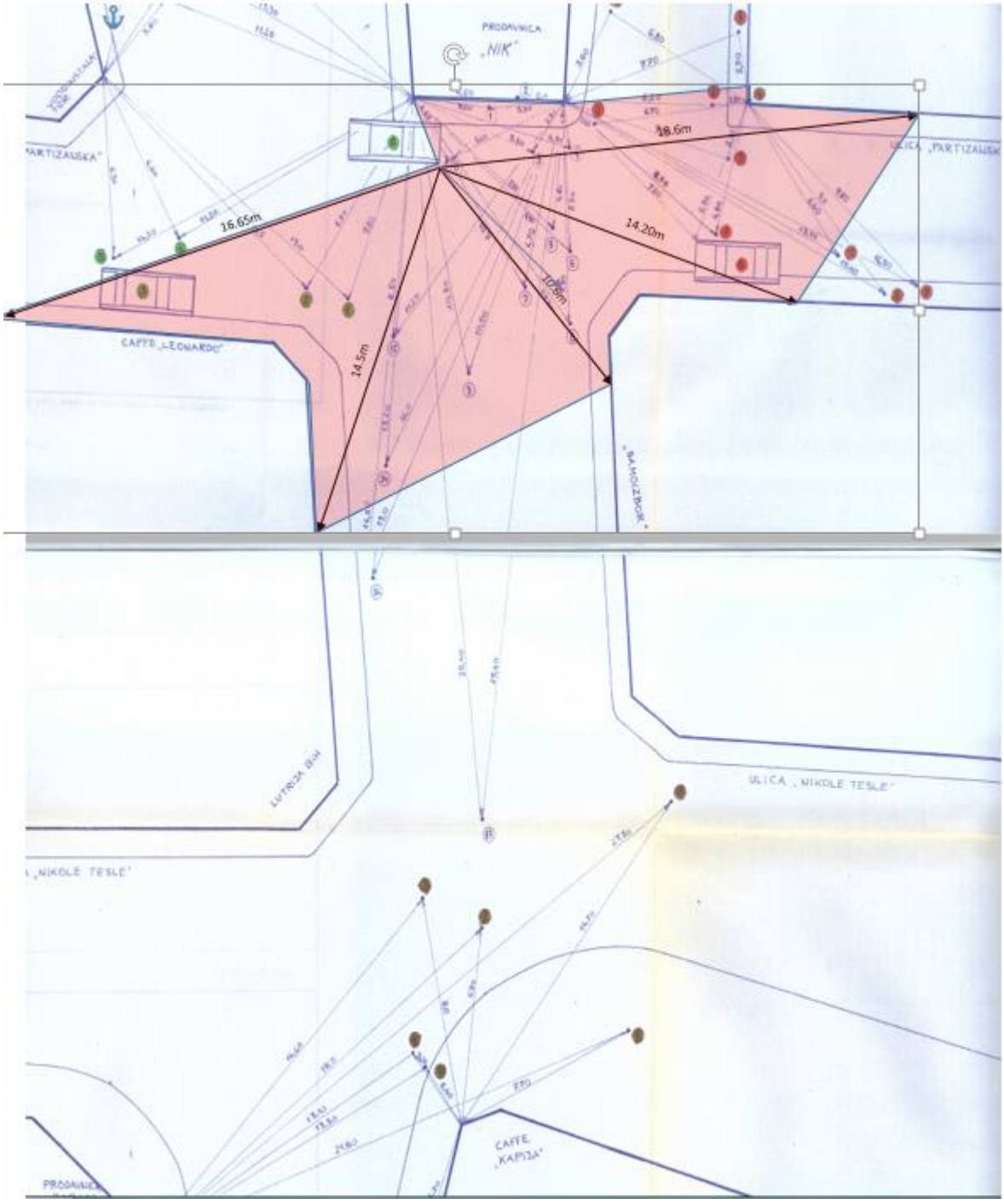
Section	**Number of sub-sections**
Northeast façade Kapija building	1-11
Caffe Kapija	12-21
Samoizbor building southwest facade	25-35
Samoizbor building West corner	36-38
Samoizbor building Southwestern facade	39-58
Northern building, Southeast facade	59-73
Northern building, southwest facade	74-78
NIK building	79-81
Kapija building, Northwest facade	82-94

Comparative Table

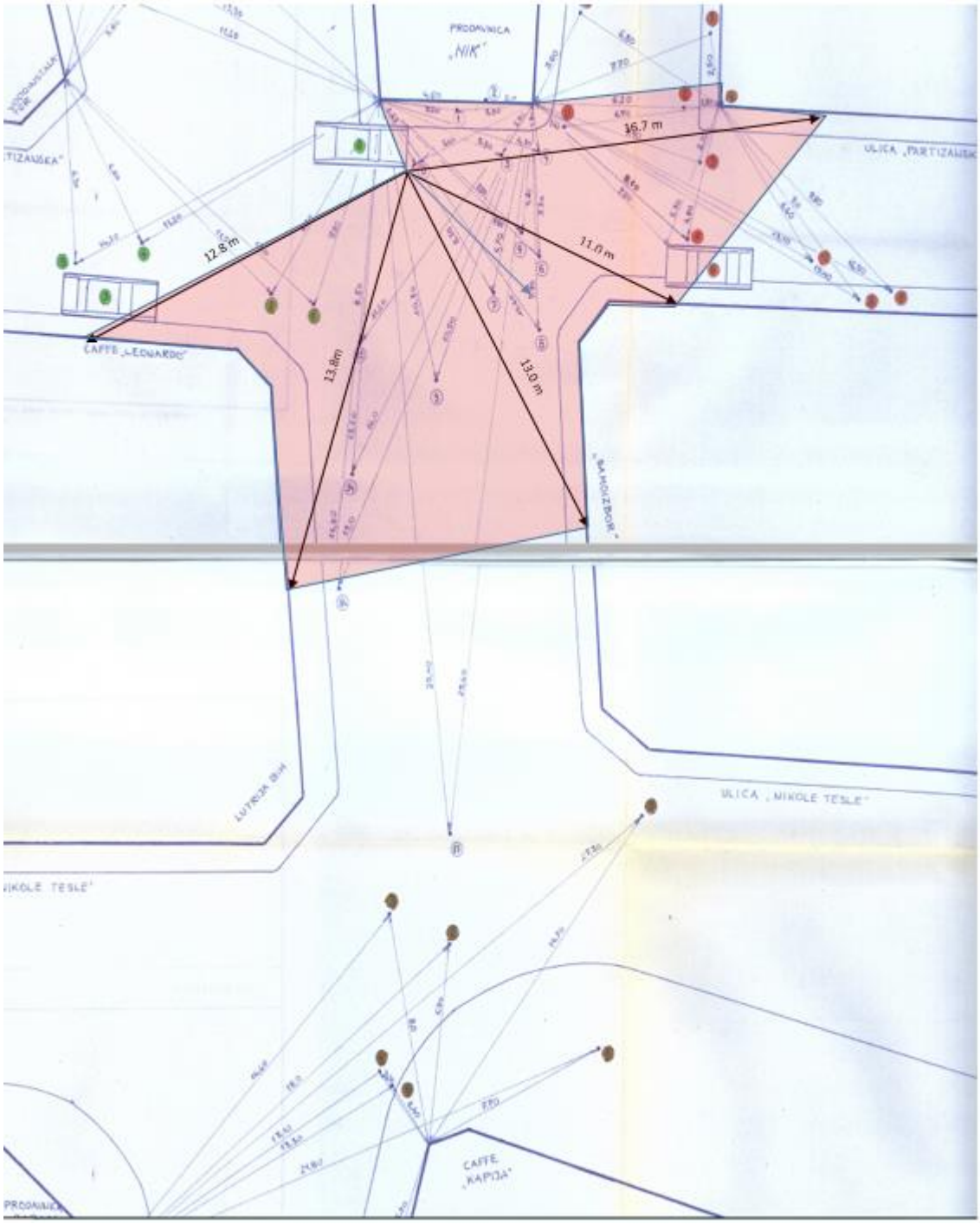
Building	**Section No.**	**Feasibility Test**	**Test 1 Zecevic**
Kapija Northeast facade	1	22	9
	2	19	4
	3	20	4
	4	6	0
	5	4	5
	6	2	0
	7	0	1
	8	0	0
	9	0	0
	10	0	0
	11	0	0
Caffe Kapija	12	0	2
	13	0	1
	14	0	0
	15	0	0
	16	0	0
	17	0	1
	18	1	0
	19	0	0
	20	0	0
	21	0	1

	22	0	0
	23	0	0
	24	0	0
Samoizbor Southwest facade	25	0	0
	26	0	0
	27	0	0
	28	0	0
	29	5	0
	30	0	0
	31	2	0
	32	0	0
	33	0	0
	34	0	0
	35	2	1
Samoizbor West corner	36	13	3
	37	11	0
	38	6	2
Samoizbor Nortwest facade	39	11	1
	40	2	0
	41	0	0
	42	0	0
	43	1	0
	44	0	0
	45	0	0
	46	0	0
	47	0	0
	48	0	0
	49	0	0
	50	0	0
	51	0	0
	52	0	1
	53	0	0
	54	0	0
	55	0	0
	56	0	0
	57	0	0
	58	0	0

Northern building Southeast facade	59	0	0
	60	0	0
	61	0	0
	62	0	0
	63	0	0
	64	0	1
	65	0	0
	66	3	0
	67	1	0
	68	4	0
	69	0	0
	70	0	0
	71	1	0
	72	1	0
	73	1	0
Northern building Southwast facade	74	10	5
	75	5	4
	76	1	2
	77	1	0
	78	0	2
NIK building	79	Not counted	Not counted
	80	Not counted	Not counted
	81	Not counted	Not counted
Kapija building Northwest facade	82	26	9
	83	14	9
	84	6	12
	85	8	5
	86	7	2
	87	3	3
	88	2	3
	89	0	0
	90	0	1
	91	0	2
	92	0	0
	93	0	0
	94	0	0



Range of maximum effective fragmentation on buildings – test no. 1 – based on projectile's position of projectile in Dr. Zecevic's opinion



Range of maximum effective fragmentation on buildings – test no. 2

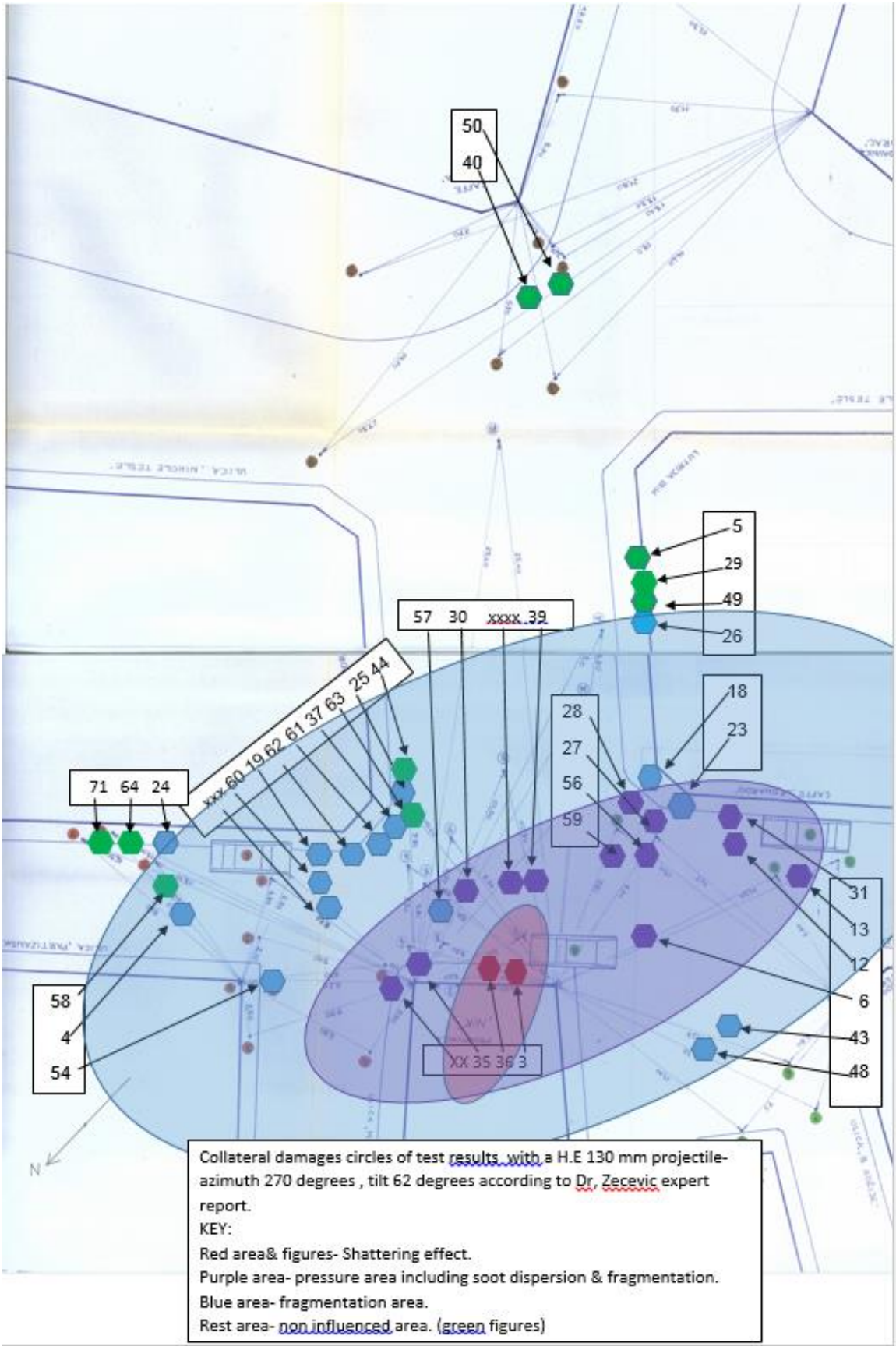
10. Analysis of findings – fragmentation

A. In general it was found that the fragmentation characteristics in both tests were quite similar as reflected in the damage to the building walls, except for several fundamental differences:

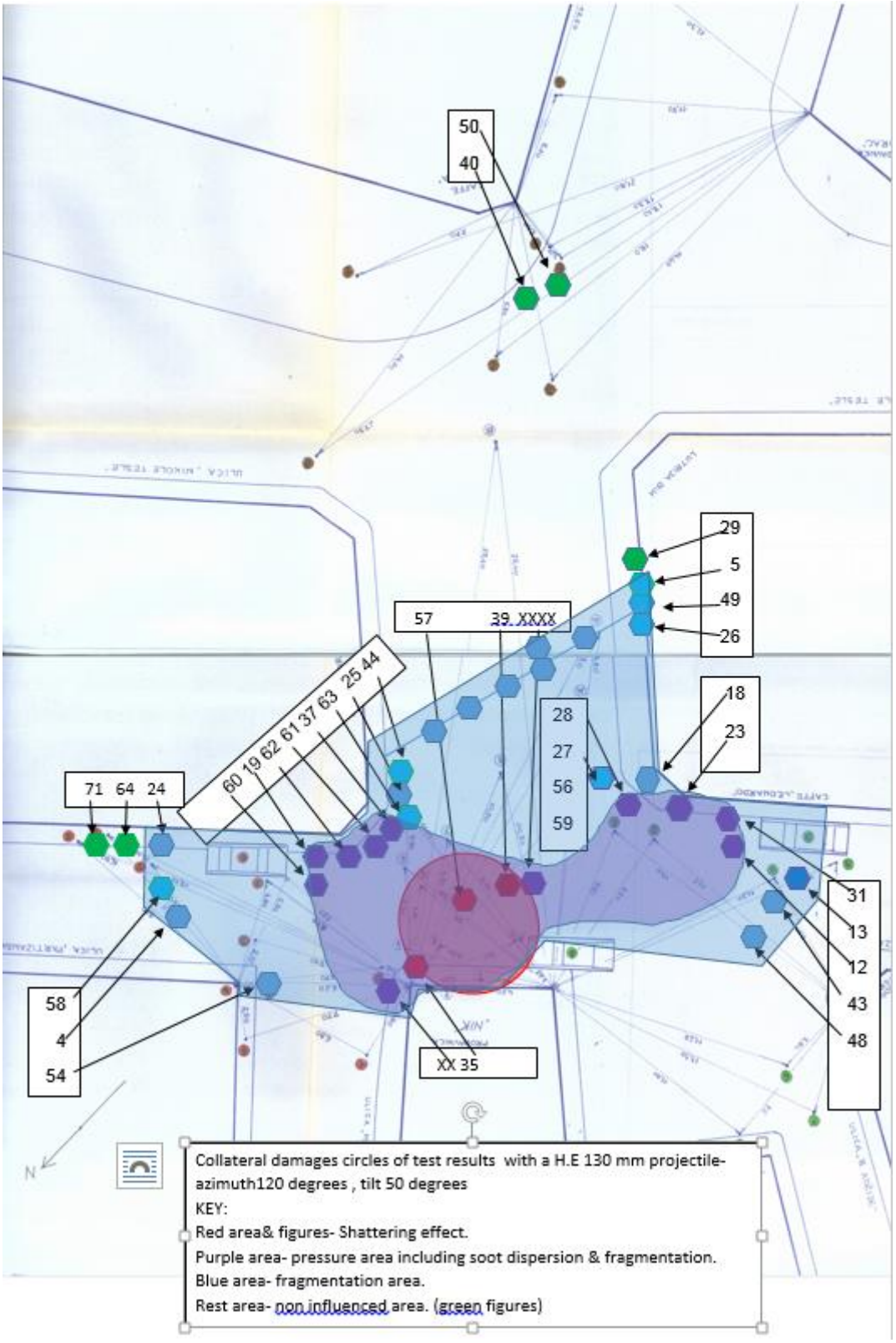
1. Damage to the NIK building – in test no. 2 the building was damaged by fragmentation on the building walls significantly more than in test no. 1, particularly the southern part of the eastern wall – facing the square.
2. On the other hand, the explosion pressure and fragmentation that damaged the building in test no. 1 was significantly greater than that in test no. 2, as reflected in heavy damage to the store façade and the items in the store.
3. Samoizbor building – West corner- on the bottom part, the amount of fragmentation in test no. 2 was significantly greater than in test no. 1. At the same time, on the upper part of the face side of the building, and in its proximity, fragmentation in test no. 1 was greater than in test no. 2.
4. The same found at the North corner of Kapija building – on the bottom part, fragmentation in test no. 2 was greater than in test no. 1, while on the upper part the opposite was true.
5. Fragmentation range in the direction of the square (toward Southeast) – in general, we can say that maximum effective fragmentation range in the direction of the square as reflected in damage to buildings was quite similar.
6. In the Southwestern façade of the Samoizbor building – in test no. 2 the large amount of fragmentation above the effective fragmentation was higher than in test no. 1.

Part IV - Comparison of Test Results to the Kapija Event and to Dr. Zecevic's Model

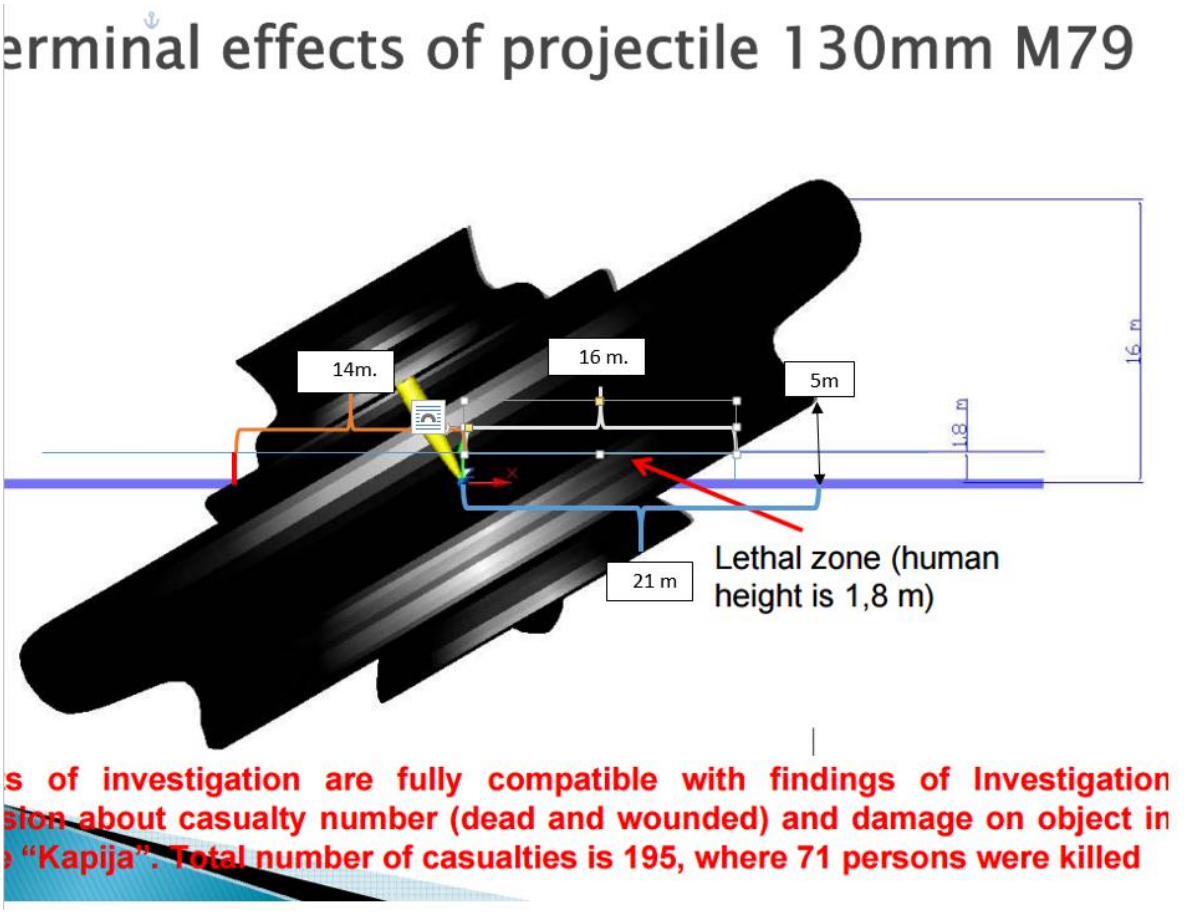
A. Comparison of the injuries to the human figures in tests 1 and 2 to Dr. Zecevic's effective fragmentation model

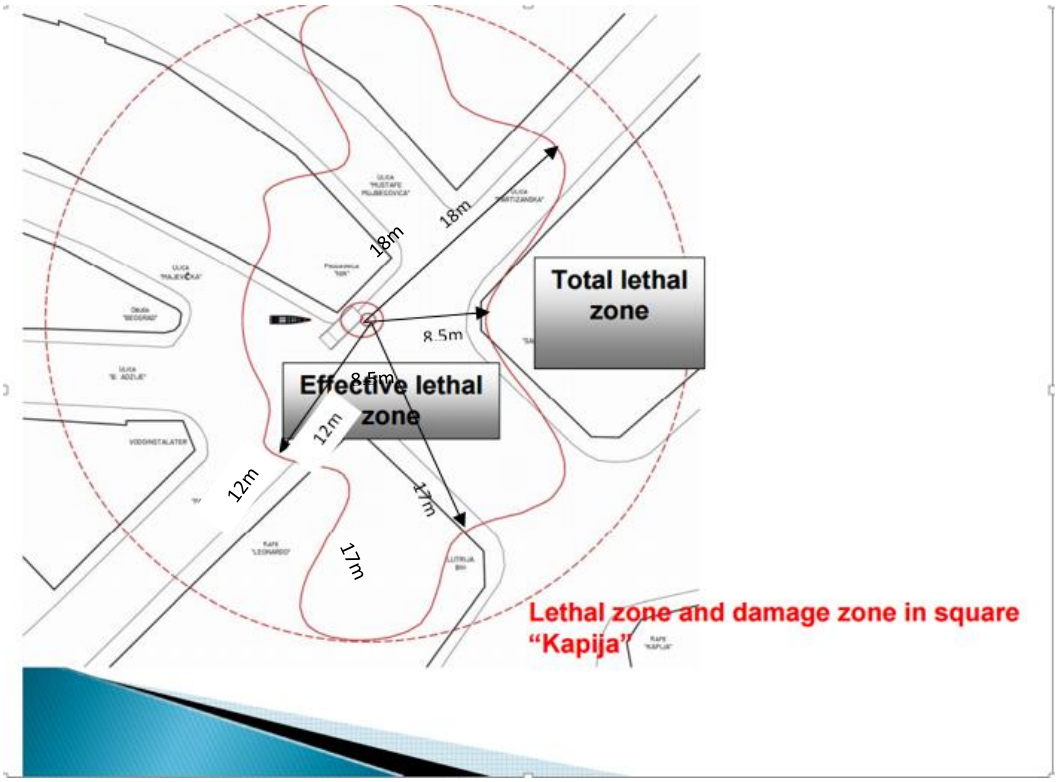


Injuries to Human Figures – Test No 1



Injuries to Human Figures – Test No 2





Maximum effective Fragmentation based on Dr. Zecevic's model

B. Analysis of findings

1. In general, compatibility was found between the model proposed by Dr. Zecevic and the test results in all three fragmentation directions – north, south and east.

2. **The two tests that were conducted, as well as the model proposed by Dr. Zecevic, did not resolve the issue of numerous injuries sustained by people at the Kapija event in areas found outside the effective fragmentation range, particularly in the area of Caffe Kapija and Caffe Leonardo.**

3. An examination of the photos showing the victims found in these areas, particularly in the area of Caffe Kapija, indicates that the injuries are particularly concentrated in the lower part of the body.

4. **A comparison between tests 1 and 2 with respect to the extent of injury to the human figures shows the following:**

	Test no. 1 (%)	**Test no. 2 (%)**
Shattering	**2**	**0**
Soot darkening	**29**	**13.5**
Fragmentation	**73**	**86**
Shockwave	**24**	**30**
No damage	**27**	**14**

Analysis of the findings in the table, in light of the location of the human figures, shows significantly more casualties in test no. 2 compared to test no. 1. We can assume that the higher number of casualties is the result of additional fragmentation caused by ricochets created during the massive impact of the projectile fragments on the granite stones, as well as the higher pressure exerted in the direction of the square in test no. 2 due to the position of the projectile.

The greater destruction impact of the projectile in test no. 2 is reinforced by the concentration of fragmentation on the walls of the buildings as stated in the previous section, indicating that fragmentation in test no. 2 was more concentrated in the bottom part of the buildings, compared to test no. 1 where it was concentrated in the upper part of the buildings.

However, as noted above, none of the tests resolved the issue of the large number of casualties in the areas found outside the projectile fragmentation range, an outcome of their location and angle.

Part V

Additional Issues that Require Additional Investigation that may shed light on what Transpired on 25.05.1995

Several phenomena observed at the Kapja event that are incompatible with Dr. Zecevic's opinion.

1. **The shattered bodies**

   Analysis of the characteristics of the casualties at the Kapija event indicates that 3 people sustained unusually severe injuries. The common denominator was that the injuries of all three involved complete shattering of the center of their body – chest and abdomen, while the limbs remained relatively intact.

   Internal organs were found scattered throughout the square, most likely from these casualties.

   The place of these casualties is not known, except for no. 62 whose body was found in front of the corner of the Samoizbor building.

   There is no information about the location of the other victims. However their bodies were definitely found throughout the square and not close to NIK building.

   Damage to the bodies indicates that the victims were shattered when the front part their body was facing the direction of the explosion center. It looks like a circle of people around the center where the explosion occurred.

   The small amount of soot blackening on the bodies of the victims, and the massive shattering of the bodies, points to their immediate proximity to the explosion center within the fireball area. This area is characterized by enormous pressures that create a shattering of objects found in its midst and in its immediate surroundings, that are flung to a distance. Thus the body of victim no. 62 was flung from the location of the explosion to where the body was found.

   A comparison of the characteristics of the body shattering between test no. 1 and no. 2 points to a fundamental difference – the massive damage to victims 3 and 36 that were positioned in front of the NIK building was concentrated in the bottom part of the body, while in the Kapija event the damage was concentrated in the middle area of the body.

   Analysis of the progress of the shockwave and the development of a fireball in both tests in which the projectile exploded on the ground indicates that the damage will be combined, in both the lower and middle parts of the body.

   In the opinion of the undersigned, the characteristics of the injuries sustained by the victims show that it is reasonably likely that an explosion occurred at the height of the victims' chest.

   Another possibility is that the bodies of those three victims were devastated by a direct hit of the projectile itself . This direct hit might cause the initiation of the ammunition

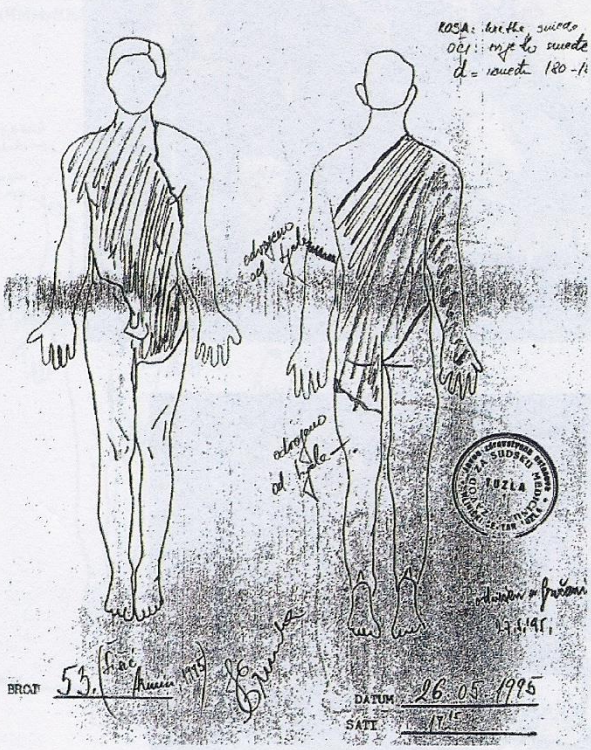
Fireball – test no. 1 – radius of 1.5 meters

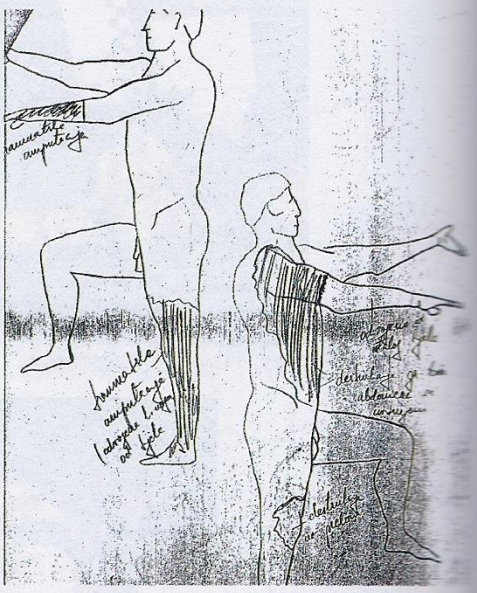
Fireball – test no. 2 – radius of 1.5 meters

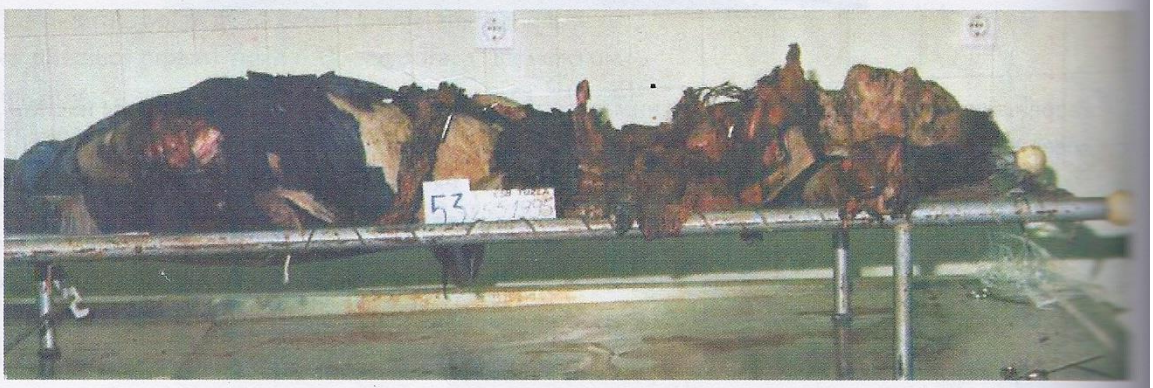
53. ШИШИЋ АРМИН, син Фадила, рођен 1975. године из Грачанице

Мртво тијело дужине између 180 и 185 цм, кратке смеђе косе свјетлокестењастих шареница. Спољашњим прегледом мртвог тијела, констатоване су сљедеће повреде: обимне разорине трбуха и удова са трауматском ампутацијом лијеве ноге у нивоу доњег дијела бутине и руке у нивоу горњег дијела подлактице.

За ову особу је достављен шематски приказ констатованих повреда као и фотодокументација сачињена током обављања спољашњег прегледа.







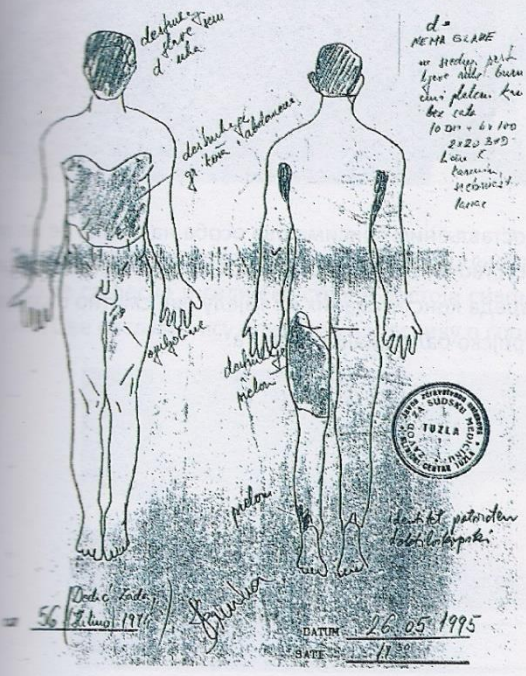
На овом мртом тијелу видљиво је комплетно разорење трупа и горњих екстремитета као и разорење највећег дојела лијевог доњег екстремитета. Такође, на фотографијама је видљив недоста-

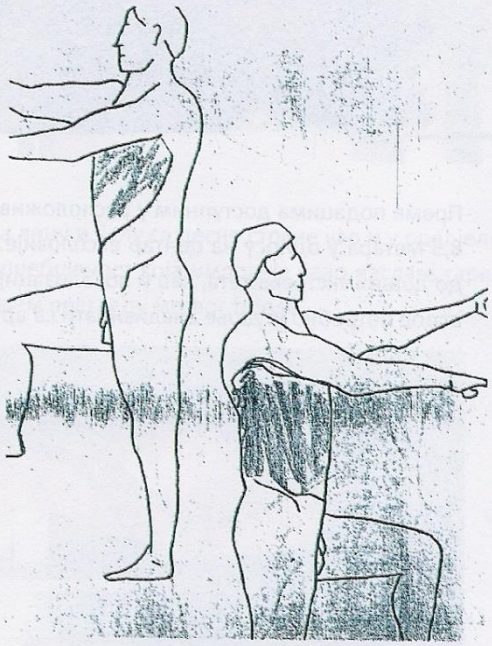
The body of Victim 53. The injuries to the body indicate immediate proximity to the center of the explosion located in the middle of the victim's body.

56. Дедић Зада, кћи Хилме, рођена 1974. године, из Тузле.

За ову особу у записнику о спољашњем прегледу мртвог тијела не постоји податак о дужини леша нити било који други податак у вези са општим тјелесним карактеритикама. У опису повреда постоји само констатација да на овом тијелу постоји потпуно разорење главе и грудног коша као и лијеве бутине. Било какве друге повреде на овом мртвом тијелу нису описане.

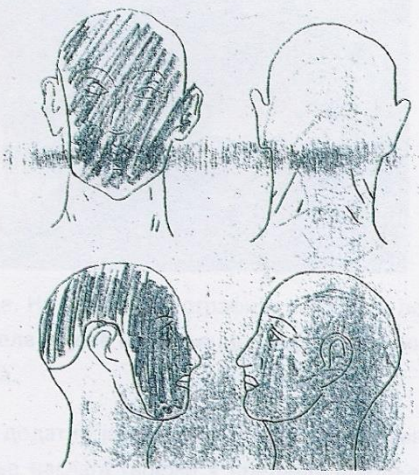
За ову особу је достављен шематски приказ констатованих повреда као и фотодокументација сачињена током обављања спољашњег прегледа.





На приказаним шематским приказима видљиво је да су уцртана масивна оштећења која постоје у предјелима предње и предњедесне стране трупа, задње стране лијеве наткољенице, те у предјелу главе која готово у цијелости недостаје. На шематским приказима уцртана је и повреда лоцирана у предјелу задње стране лијеве поткољенице непосредно изнад лијевог стопала која није описана у записнику о прегледу мртвог тијела.

Мртво тијело фотографисано је само два пута и то на носилима на којима је транспортовано, без скидања остатака одјеће и без дизања мртвог тијала на обдукциони сто.



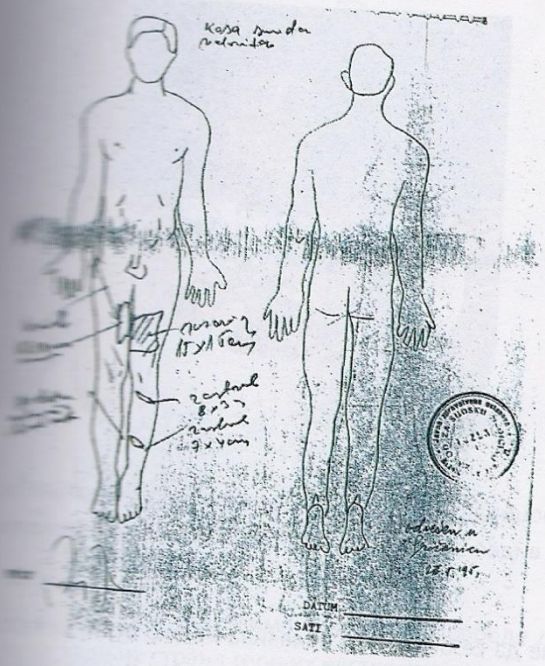
The body of Victim no. 56 – the main injuries are to the chest in front, to the right side and behind the left leg

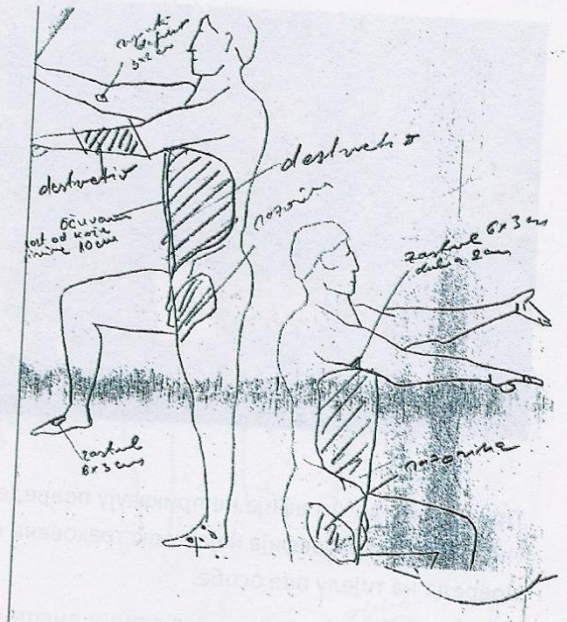
62. Мујановић Нешет, син Омера, рођен 1974. године, из Градачца.

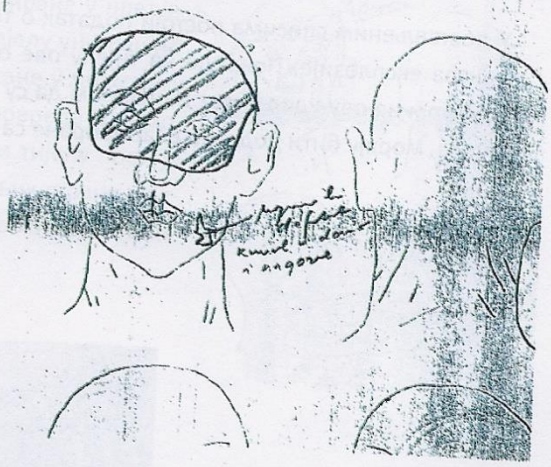
Мртво тијело без наведене дужине, косе смеђе, валовите.

У записнику о спољашњем прегледу констатоване су сљедеће повреде: постојало је разорење предњег дијела лобање, грудног коша, обију бутина, десне поткољенице.

Законом особу је достављен шематски приказ констатованих повреда као и фотодокументација начињена током обављања спољашњег прегледа.







На приложеним шематским приказима видљиве су уцртане масивне повреде лоциране у предјелу главе са предње стране, лијевог горњег екстремитета, масивна повреда у предјелу трупа. У предјелу десног доњег екстремитета описана је повреда у висини кука која је пробојним каналом везана са повредом у предјелу предњеунутрашње стране десне надлактице. У наставку те повреде, на предњој и могуће предње унутрашњој страни лијеве наткољенице у горњој трећини, уцртано је масивно разорење. Такође, уцртане су и мање повреде лоциране у предјелима потколе
предње стране и у предје

2. <u>Dispersion of remains on vehicles</u>

A. <u>The blue vehicle adjacent to the western wall of Samoizbor building</u>

This vehicle was located adjacent to the entrance to the store and 7-8 bodies found in front of store.

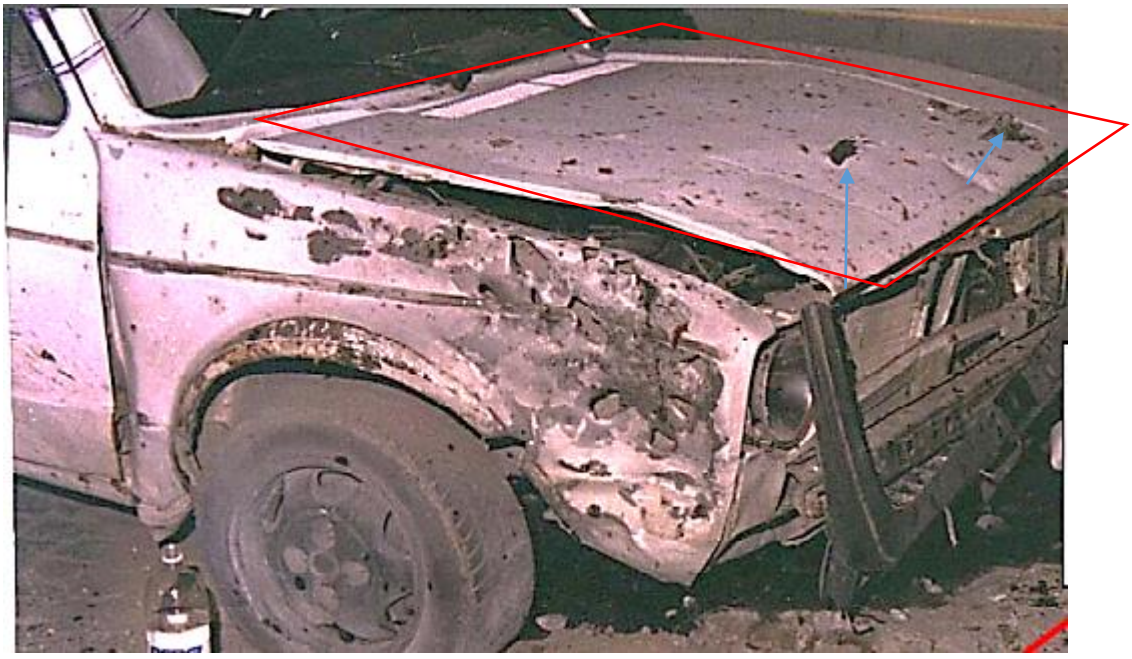
The vehicle itself was covered all along its front- front fender, engine hood, windshield and the roof with remains, most likely from shattered bodies. On the engine hood there was an area clean of remains – perhaps this is where the remains of one of the victims found adjacent to the explosive was flung as a result of the shattering effect of the explosives, or perhaps one of the victims sat on the engine hood and absorbed the remains into his body;

The same holds true for the right side of the vehicle.

In addition, the vehicle's side and back windows appear to be shattered.

Such a massive dispersion of human body remains requires exposure of the victim's body to the explosion very close to the point of explosion. It is not possible that these remains, in such a large concentration, will arrive from the area of the Golf vehicle, particularly as there is no photographed evidence showing that these remains were found in additional places, except for one place -

B. Golf vehicle – remains and splashes, most likely from a human body, although the amount of remains and their dispersion is much smaller than on the blue vehicle.



Pieces of flesh and probable bloodstains on the side of the vehicle and engine hood

The large amount of remains on the engine hood and human tissue found on the dashboards of the vehicle may most likely indicate a shatter explosion that occurred higher than ground level.

Human tissue on the dashboard of the Golf vehicle

Splashes and smears of blood, human tissue, and penetrations of shrapnel in the right-hand door of the vehicle

3. **The body of the dead person (probably victim no. 18) near Samoizbor building**

In front of the blue vehicle, located adjacent to the corner of the Samoizbor building lay a human corpse.

An examination of the film from the cameras that documented the event shows that smoke was emitted from the victim's severely shattered leg, a long time after the explosion. These circumstances indicate that the source of the smoke was not the result of metal fragments that touched the victim's legs. What's more, adjacent to the place emitting the smoke an object was found that appeared to be a thin partially round metal object about 10-15 cm long. At this stage the object has not been identified, and the issue should be further examined as it is clearly not from the 130 mm OF 482M projectile.

4. **Lack of fragmentation spread behind the Golf vehicle and the wall of the adjacent building**

As noted several times in this report, there are no fragmentation or shockwave marks on the wall of the NIK building behind the Golf vehicle, on the sidewalk curb adjacent to the vehicle or on the sidewalk itself.

It is clear that the explosion of a round object spreads fragments in a 360 degree radius. The fragmentation range and its quantity is the outcome of the location and angle of the projectile in relation to the object.

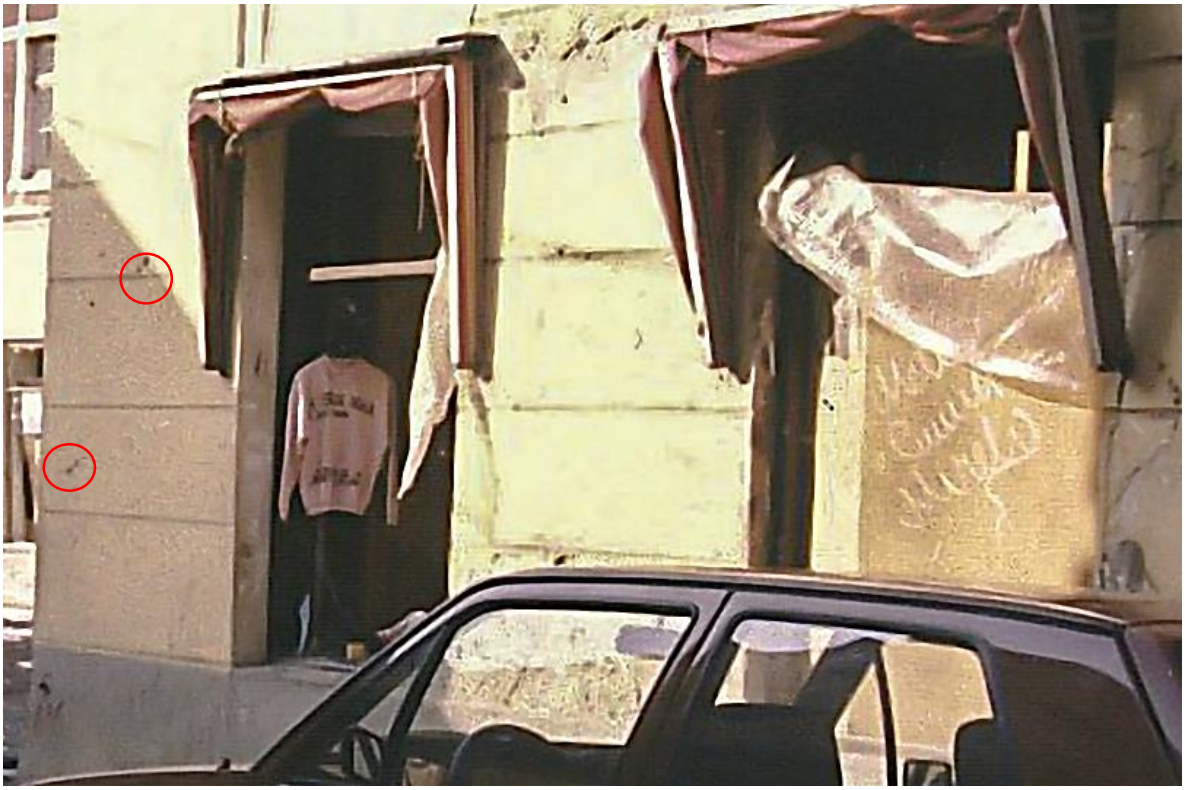
In both tests the façade of the NIK building was severely damaged from fragmentation and shockwave. However, in the Tuzla event no such damage was found, although such damage must occur in the event of a shell explosion, particularly a 130 mm projectile.

The dramatic differences between these effects invalidate the possibility that a cylinder shaped explosive the size of a 130 mm diameter projectile exploded near the Golf vehicle. These tests and others conducted by the Serbs at different times prove that this determination is unequivocally valid, irrespective of the angle and azimuth of the projectile explosion at the location where it was claimed the explosion took place in Kapija square on 25.05. 1995, near the wall of the NIK building adjacent to the Golf vehicle.

5. Additional fragmentation damage

Diagonal fragment damage from the direction of the ground upwards was found in a number of places on the northeast wall of the NIK building, near the corner of the building, in a place completely hidden from the explosion center.

This damage is not unequivocally related to an object that exploded, as claimed, near the Golf vehicle. Furthermore, the finding of this damage undermines the determination regarding what occurred at the event in Kapija.



Summary:

The conclusions of Dr. Zecevic opinion were examined from almost every possible angle

The results of analysis of each of the characteristics that Dr. Zecevic determined his opinion indicate unequivocally and clearly **that the opinion of Dr. Zecevic is fundamentally impossible, based on false, unproved and unchecked data**

Not even one of the points that were examined for the preparation of this report and supported by real conditions field tests supports the speculations and conclusions of Dr. Zecevic

The conclusion of this written expert opinion , is unequivocal, the damages to the "GOLF" car and the façade of NIK's building indicates that there is no possibility that a 130mm H.E projectile exploded at a distance of about 2 m. from the wall and 40 cm from the "Golf" car without a significant damages as happened in that case. This conclusion is based on the tests results, carried out by the undersigned at the Technical Test center at 10-11/02/2016 , as described in this report, that proved that there is no difference about the projectile direction and tilt angle- it's explosion causes a much more significant damages to the car and the wall than the damages occurred at Kapija square. Also, those different directions of arrival and angle of fall of the projectile would result, as proved by the test conducted on 11/02/2016 , with a significant difference of human injuries dispersion pattern than the one shown on Kapija square.

Other test conducted by the Serbs Experts which are briefly describe at the end of this report shows same results.

The signs and evidences that were found at the scene especially the ground fragmentation spray indicates that the **direction of the explosion of the item exploded near the Golf car is opposite to the one suggested by Dr. Zecevic**

Furthermore, some very crucial points that mentioned at the previous chapter increases the doubts about the real occurrence at Kapija square at 25/05/1995. The questions of great importance arose from this report should be further examined.

One of the most important contradictions arose from the Tuzla's Kapija square incident that was not solved by Dr. Zecevic in his report is the inexplicable difference between the crater size and mass

amount of causalities in the square and around it a which might suggest an involvement of massive amount of explosives and fragmentation, against minor damage to objects nearby to the explosion point –such as the Golf car and Nik building which might suggest involvement of low amount of explosives and fragmentation effects.

It seems that the primary failure of Dr. Zecevic is due, most likely, to his being a ballistics expert who is familiar with the procedures, theories and findings relating solely to the ballistics of shells. However, he does not have, apparently, an appropriate background in investigations of explosion scenes from the scientific/forensic aspects that require precise work, according to the rules of evidence, in which there is sufficient relevance for the purpose of submission to the Court.

An example to this is the identification of the item exploded at Kapija square years before he wrote his expert opinion without being at the scene immediately after the explosion and without the self-collection of fragments and evidences and just by receiving pictures and metal fragments. In this case, **Dr. Zecevic should have been very cautious, express doubts about the linkage between the materials handed to him, and the item exploded at Kapija square**.

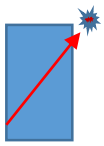
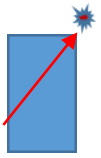
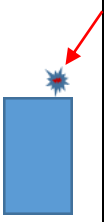
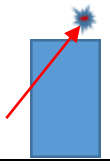
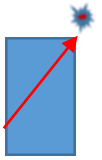
Moreover, DR. Zecevic based his conclusions about the azimuth and angle of the projectile solely on the location of the Golf car but, as proved here, **Dr. Zecevic changed the original location of the car and the explosion crater location so it will fit to his calculations**.

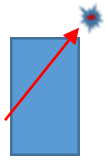
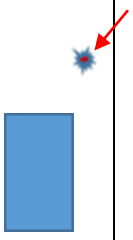
Also, Dr. Zecevic did not support his conclusions by conducting a test. As I understood, Dr. Zecevic was invited to be present at the tests but refused. Have he been at these tests, he could understand that there is no option that an explosion of a 130 mm projectile containing 3.6 Kg of explosives, at a distance of 40 cm from a car will end with just couple of fragments penetration into the car's side panel and gently bending of the panel.

Sharon Joseph

Appendix A

Result of the comparative experiments concerning characteristics of the explosion of 130 mm shells according to data submitted by the Serbs

No.	Date of test	Type of shell	Angle of shell (degrees)	Direction of shell (azimuth)	Distance from the vehicle	Description of the location	Surface	Damage to the vehicle	Distance vehicle was repelled	Explosion crater
1	05/08/2014	130mm OF 482M	62	270	Distance of about 40 cm from the front of the vehicle parallel to the right side		Concrete	Severe damage to the right corner of the vehicle and the wheel of the vehicle	145 cm backwards, 60 cm towards the wall	Shallow, fragmentation spread of about 170 degrees
2	11/08/2014	130mm M79	62	270	Distance of about 40 cm from the right corner of the vehicle		Concrete	Tearing of the right side, damage to the right wheel, penetration of shrapnel into the right door	80 cm backwards, 47 cm towards the wall	
3	05/08/2014	130mm OF 482M	43	90	Distance of about 40 cm from the front of the vehicle close to the center		Concrete	Severe damage to the front of the vehicle, engine and right side	80 cm backwards, 47 cm towards the wall	
4	11/08/2014	130mm OF 482M	31	270	Distance of about 40 cm from the front of the vehicle close to the center		Concrete	Presumably light damage to the vehicle, rear window shattered	20 cm backwards, 10 cm in the direction of the wall	
5	25/08/2014	130mm OF 482M	62	270	Distance of about 40 cm from the right side of the vehicle		Granite stones	Tearing, shattering and denting of the right side, damage to the right wheel penetration of shrapnel into the right door	45 cm backwards, 47 cm in the direction of the wall	Shallow center

6	04/09/2014 This was the most comprehensive of the experiments conducted, and in which the scene of the explosion was fully reconstructed, including buildings, the vehicle, direction of the shell and everything according to what is stated in the opinion of Dr. Zecevic	130mm OF 482M	62	270	Distance of about 40 cm from the right side of the vehicle according to the opinion of the prosecution expert		Granite stones	Tearing, shattering and massive denting of the right side, damage to the right wheel	45 cm backwards, 47 cm in the direction of the wall	The center of the explosion was shallow, granite stones were shattered from the crater to the wall, massive shrapnel damage to the lower section of the wall
7	29/08/2014	130mm OF 482M	20	90	At a distance of 145 cm from the right corner of the vehicle		Granite stones	Light denting of the right side, window was repelled, light damage to the right wheel, no shrapnel penetration	Vehicle remained in place	90 X 60

Photograph 20 – The vehicle, type "Golf 1" after the activation of 130 mm OF482M projectile placed under the 62° angle in relation to the horizon (photograph PICT0754)

Results of test no. 1

Photograph 24 – The vehicle, type "Golf 1" after the activation of 130 mm M79 projectile placed under the 62° angle in relation to the horizon (photograph DSCN5605)

Results of test no. 2

Photograph 28 – The vehicle, type "Golf 1" after the activation of 130 mm OF 482-M projectile placed under the 43° angle in relation to the horizon *(photograph PICT0910)*

Results of test no. 3

Photograph 30 – The vehicle, type "Golf 1" after the activation of 130 mm OF 482-M projectile placed under the 31° angle in relation to the horizon *(photograph* PICT0754*)*

Results of test no. 4

Photograph 33 - The place of explosion of the 130 mm OF-482M. *In the centre of the re circle is the explosion centre.*

Results of test no. 5

Results of test no. 6

Photograph 40 The place of explosion of the 130 mm OF-482M

Results of test no. 7