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254.

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New Delhi-110037

Dated: September, 2017

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To

Directors General of all CAPFs

DsGP/IsGP of all States/UTs

Commissioner of Police, Delhi

Sub: **Smart Policemen-Developing Designing and Trial of High Performance Uniform Articles and Accessories -Reg.**

Sir,

In order to make improvements in the existing Police Uniform, the BPR&D has conducted a Research Study under the 12th Five Year Plan and prepared a **Technical Report** on “**Smart Policemen-Developing Designing and Trial of High Performance Uniform Articles and Accessories**” in association with the National Design Business Incubator (NDBI), National Institute of Design, Paladi, Ahemdabad. The report covers all the important aspects of Police Uniform (Working Uniform, Winter Jacket, Raincoat, Cap, Shoes, Belt, etc) including their improvement and recommendations.

2. The report is now available on the BPR&D website at <http://bprd.nic.in>, under the headings - “News & Events”, “What’s New” and “Modernisation Division → Publication/ Reports”.

3. You may like to go through the **technical report** and select any combination / pattern suitable for your Organisation. Kindly keep BPR&D informed.

Yours sincerely,

(Dr. Meeran C Borwankar)
Director General

5/9/17

24.17



NATIONAL DESIGN
BUSINESS INCUBATOR

SMART POLICEMEN

Developing Designing and Trial of High Performance Uniform
Articles and Accessories

Project Team:

National Design Business Incubator (NDBI)
National Institute of Design, Paldi
Ahmedabad-380007



SMART POLICEMEN

Developing Designing and Trial of High Performance Uniform
Articles and Accessories

Preface

The project titled “Smart Policemen- Developing Designing and trial of high Performance Uniform Articles and Accessories” was undertaken by National Design Business Incubator (NDBI), National Institute of Design, Ahmedabad. National Institute of Design is India’s premier and first design institute that has been declared as an ‘Institution of National Importance’ by the Act of Parliament, by virtue of the National Institute of Design Act.

The research and designing of Smart Policemen Uniform took about five years. This research involved extensive field surveys in different States of India. In particular, in-depth interviews with policemen and women from all cadre, and observation of their day-to-day physical work-flow to understand their activities were conducted by the researchers and designers from NDBI. Geographically, this study was conducted in 9 States and 3 departments suggested by BPR&D. Secondary research included probing of other countries police dress and evaluating different types of fabrics.

The NDBI team visited the following places: armed battalions, special commando force, motor transportation department, coastal security, mounted police, control room police, traffic police, women police stations, investigation department, stores and materials department, training centres, tailors and local stores, weapon experts, fire department, doctors, police band, few rural police stations, one model police station, police library, and police mess. Our inquiry focus was to obtain data on the following: policemen intentions, personal and professional information, experience of travel or job, love of uniform, issues of uniform, fabric, colour, weather, shoes, belts and caps, insignias and name badges, performance discomforts, economic and cultural issues, maintenance issues, other police uniform and general uniforms, any form of suggestion, future of policing etc.

As a part of design process, NDBI team and BPR&D team met multiple times to iterate the design of Smart Policemen Uniform. Project Coordinator Mr. KK Sharma- IPS, Director General BSF along with team of officers of Modernization Division of BPR&D played an instrumental role in improving the design of uniform in the design phase. The composition of design team and participation from Modernization Division of BPR&D ensured the balance between researcher and practitioners. In last two meetings, the suggestions & guidance of Dr. Meeran C. Borwankar, DG BPR&D played a vital role to bring the Project Report in remarkable and explicable form for final conclusion and decisive deliverables for Police Forces.

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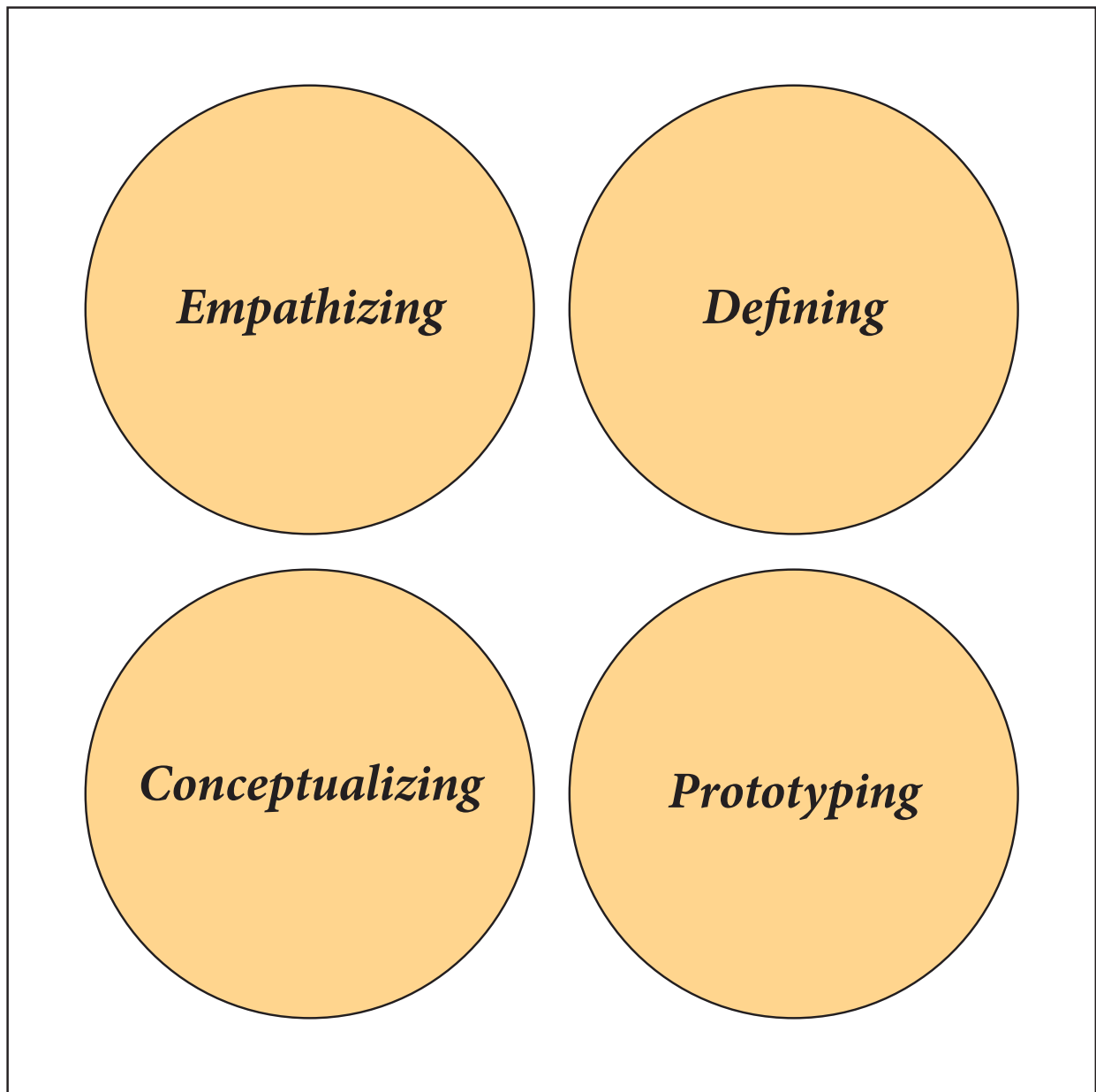
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Design Process

The design process of this project was divided into four parts

- 1- Empathize
- 2- Defining project brief
- 3- Design conceptualisation
- 4- Designing prototype and Testing

Design Process

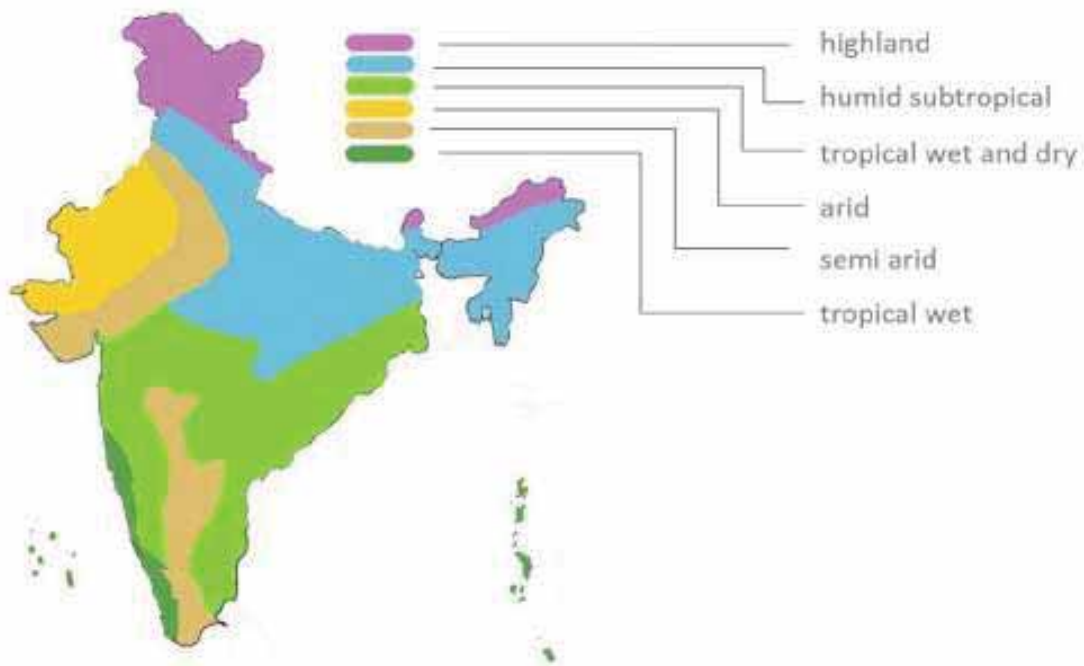


Empathize

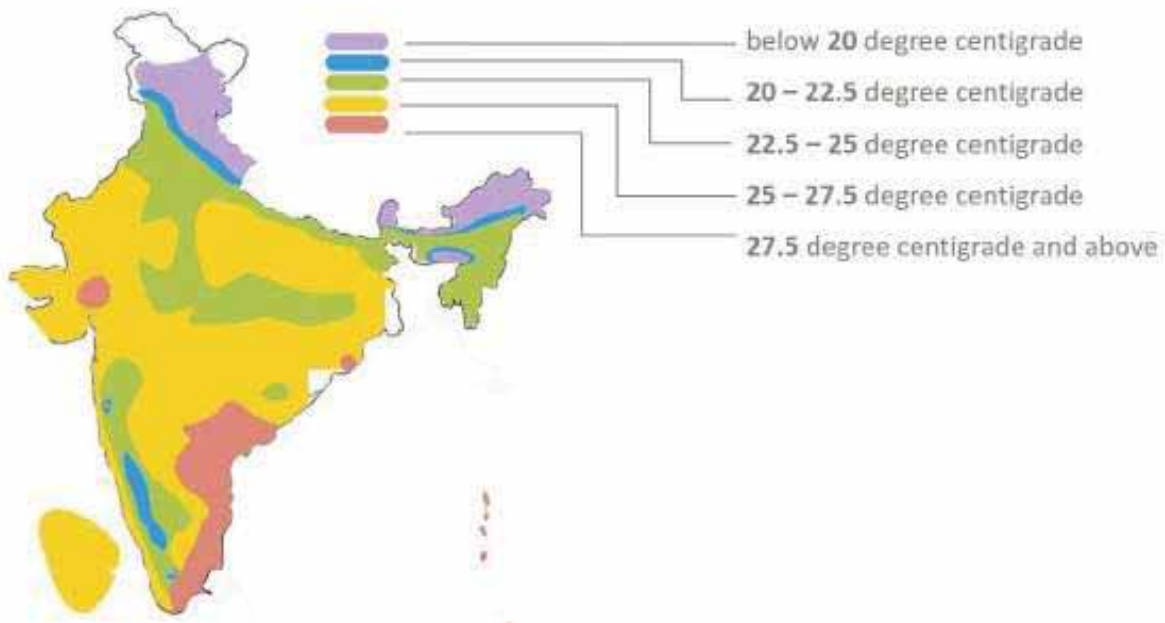
Understanding Indian Climate diversity

In the beginning, NDBI team collected data related to Indian climate. We spoke to few textile designers to understand about how fabric behaves in certain type of climatic conditions. This information was critical because the proposed new uniform will be used in both internal and external context. Our choice of the final fabric should address all the critical findings obtained from our field studies.

climatic zone map



average temperature map



Field studies geographical locations

NDBI team visited different part of the country to understand existing dress/uniform related problems, mind-sets: both police and common people, and scope for designing a new uniform.



National Police Academy (NPA), Hyderabad

21st September to 25th September 2012

Our very first place of research for the police uniform project was Sardar Vallabh Bhai Patel National Police Academy (NPA), Hyderabad. It was a perfect place to start research on a topic like police uniform. NPA is the most renowned academy in India for training the new IPS recruits; who are selected through all India Civil Services examination.

NPA campus provided us an opportunity to understand the nature of police system. It is spread over a large campus and has many experienced police officers and trainers. The Academy is headed by a Director, an IPS. The office of the Director General of Police is assisted by two Joint Directors of the rank of Inspector General of Police, 5 Deputy Directors of the rank of DIG of Police, and 13 Assistant Directors. There are a huge variety of experienced people available at NPA.

In our visit of five days we spent first three in NPA and the remaining two days were spent in meeting police officials in State headquarters. We also visited a local police station and interviewed a few police personal to understand their situation. We also spent a lot of quality time in the SVPNPA library. The team went through various State police rule books and books written by the police officials. We also took copy of relevant material available in various books and journals.

We visited artillery expert and had a first hand understanding about the current ammunition used by the Indian police force and also tried to understand the future changes that might occur. We also met the transport department duty officer. We understood critical problems faced by police drivers from the uniform perspective.

Interviews were conducted with: Mr.Vipul- IPS, Dr. Chandrashekar- Physician, Mr. Praveen Kumar Sinha- IPS, Ms. Rose Humtsoe- CISF Security (NPA Entrance), Mr. Alim Phom – CISF Security (NPA Entrance), Mr.C.B.Bhatt – CISF, Mr. Subbaiah – Constable Crime branch (NPA), Mr. Nayamat Ali – CISF (NPA – Main Entrance)

Mr. C.Verghese – Head Constable, MTC Department (NPA), Mr. Sitaram – Driver, MTC (NPA), Ms. Mokshada Patil – IPS Probationary (NPA), Ms. Jaya – IPS Probationary (NPA), Mr. Bhaskar, Inspector (Weapon Expert – NPA)

Number of Questionnaire filled: 21 + online questionnaire being filled



All the images captured during the visit of NDBI design team at National Police Academy (NPA), Hyderabad

Andhra Pradesh Police

21st September to 25th September 2012

We visited Andhra police State headquarters and met Tejdeep kaur Menon. She was quite unhappy about the State of women police uniform. She gave us valuable suggestions. We also met Mr. Krishna Prasad ADGP. We also visited a local police station at jubilee hills where we understood daily routine of policemen and their expectations from the uniform.

Interviews were conducted with:

Ms. Teejdeep Kaur Menon, IPS – Hyderabad Police Head Quarters

Mr. Krishna Prasad, IPS – ADGP

Mr. Pradeep Kumar Reddy. Senior Inspector (Jubilee Hills Police Station)



All the images captured during the visit of NDBI design team at Jubilee Hills Police Station, West Zone Hyderabad



All the images captured during the visit of NDBI design team at Jubilee Hills Police Station, West Zone Hyderabad

Tamil Nadu

11th October to 13th October 2012

Tamil Nadu is a fairly large State with high number of urban population. It is the second largest economy in India. Its police force is over 150 years old and is the fifth largest State police force in India. The Tamil Nadu police has various distinctions and honours to its credit. It has the largest strength of women police personnel in the country. The highest number of women police stations in the country. The first women police battalion of special police. The first established Finger Print Lab in the World. The first Integrated Modern Police Control Room in the country and has the largest number of computers against other police departments in the country.

We started our research with Tamil Nadu headquarters where we met Mr. Arun, ADGP. He introduced us to various other IPS officers at the headquarters. We also met DGP police of Tamil Nadu. He suggested us to visit commando force, Tamil Nadu special police and women police stations.

We went to armed reserve police where we met hundreds of women police and male police constables. It was fruitful to interact with them. It was the first time when we interacted with such a huge number of policemen together.

We also had a small meeting with EX DGP Lathika Saran. Her inputs were quite insightful. The next day we went to Kancheepuram. The SPA Kancheepuram had arranged meetings with police officials of various cadre to have police uniform related interaction and give feedback.

Interviews were conducted with:

Mr. Arun IPS, ADGPH, Mr. Ramanujam, DGP, Mr. Panneer Selvam,DSP ,

Mr. G.Suresh, (In-charge for State Police Uniform), Ms.Dhanusha, Security Guard, Mr. Suvikkin Raj, Security Commando & Mr. Siva kumar, Commando Group Meeting, Armed Reserve Police (Women & Men), Ms.Lathika Saran, Retired DGP, Tamil Nadu Police, Ms. Senthil Kumari, AIG (Administration)

Mr. K.N.Jha, IPS, AIG, Mr. Karan Singha, AIG, Armed Police, R.Traffic,

Mr.Manoharan, IPS (SPA) Kancheepuram, Team of Police officers (Men & Women) Kancheepuram

Number of Questionnaire filled : 335 + online questionnaire filled



Kerala Police

14th October to 17th October 2012

Kerala is a beautiful State with major tourist influx. Situated in the south west coast, it is rich with greenery and back waters. Kerala has highest literacy rate in the country and is supposed to be least corrupt according to a survey. A major chunk of people from Kerala have migrated to middle east countries.

Our first interaction in Kerala was with about 15 IPS officers at the ADGP office in Trivandrum. We had a long interaction with the whole team about their expectation and problems regarding the existing uniform. After the meeting we interacted with police officials at the control room.

Kerala is a State with regular law and order situations. It was quite informative to visit the control room. We also saw a lot of official videos of the law and order situation at the control room. We visited a nearby women police station, where we understood routine work issues and design needs related to uniform in such a scenarios.

We also visited Motor transport department and saw the working conditions of mechanics and drivers. Kerala has a special tourism police. They have blue uniform, and it was insightful to understand people reaction to a different colour uniform other than khaki.

We also met coastal police. We went on a sea patrol with them to get a first hand experience of the water related scenario. The trip highlighted the fact that existing uniform of today is incompatible to work in the water context.

Interviews were conducted with:

Directors and IPS officers (Conference), Police Head Quarters, Thiruvananthapuram- Mr.V.Rajesh Kumar / Mr. Liju Paul, Traffic police constable, Control Room, Mr.P.Bijoy, Assistant commissioner, Control Room Ms. J.Reja Begam, Sub Inspector, Ms. S. Sherin , Police Constable, Control Room, Mr.B.S.Sajikumar, Sub Inspector Control Room

Mr.V.Sasidharan, KPS AC Motor Transport, Mr.Vijay Raj, Driver

Mr.S.K.Nair, Mechanic, Head Constable, Mr.M.S.Santhosh, Circle Inspector

Mr.K.K.Ramani, Inspector of Police, Ms. Preetha K, Civil police Constable

Mr. Suresh Kumar, Senior Civil Officer (Toursim), Mr. Baiju, CI Coastal Police & Mr. Stuart Killa, Coastal Security

Number of Questionnaire filled : 4 + online questionnaire



All the images captured during the visit of NDBI design team at Police Head Quarters, Thrivanandapuram.

Rajasthan Police

29th October to 30th October 2012

Rajasthan is the largest State of the Republic of India by area and poorly populated. It is located in the north-west of India. Rajasthan shares the sensitive border with neighbouring country Pakistan.

It is mostly hot during summer days and cold in the night hours. The temperatures can rise as high as 45 degrees on a normal day. Rajasthan also has one of the oldest mountain range called Aravalli. Rajasthan was important for us because it is the hottest part of the country with areas like Jaisalmer and Barmer where working for police in the uniform is extremely difficult. We questioned various police officials from the point of view of extreme heat. We visited police headquarters in the State capital of Jaipur. We also met the police store in-charge and discussed the problems understood by him in the current uniform.

We visited RAC 5th battalion and had a group meeting with large number of constables who had great number of problems with the quality of headgear, shoes and the shields. We also went to Rural Police lines, where again we interacted with policemen who patrols or works in the rural Rajasthan. We visited police training centre and met new recruits as well as trainers. We also met a few drivers before we finished our two day research trip to Rajasthan.

Interviews were conducted with:

Mr.Balaram, Head Constable, Mr. Mohanlal Lather, IPS (ADGP) R.A.

Mr.Surendra Singh, Mr. Bhagwan Sahai, Superintendent of Police, RAC 5th Battalion Group Meeting 15 Men & 3 Women, Jaipur, Women police (Ms. Sarita/ Ms.Radha Devi/ Ms.Sumita Devi), Rural Area Group Meeting, Reserve Police Lines, Mr. Deepak Bhargava (Assistant Director Admin) Rajasthan Police Academy
Mr.Chandaram Vishnoi (DSP) Outdoor, Rajasthan Police Academy

Mr. Mangtu Ram, MTC (Blue dungaree), Mr. Bahadur Singh Rathore , SP, 4th RAC (he was SP Stores & Supplies)

Number of Questionnaire filled : 38 + online questionnaire



All the images captured during the visit of NDBI design team at Rajasthan Poilce Academy, Rajasthan

Jammu & Kashmir Police

7th November to 9th November 2012

Jammu and Kashmir is known for its militancy issue. It is considered to be a very sensitive area. The situation has slightly improved over last few years but the role of police in the State is quite important. Jammu and Kashmir is situated mostly in the Himalayan Mountains. Jammu and Kashmir shares a border with the States of Himachal Pradesh and Punjab to the south and internationally with the People's Republic of China to the north and east and the Pakistan.

The State police headquarters is Srinagar. During winters it is shifted to Jammu because of extreme cold conditions. We visited Jammu headquarters and later proceeded towards Kashmir for an informal interaction with the police.

Jammu and Kashmir has three climates that include extreme wet and cold situation, dry cold towards Leh and hot and humid situation in lower altitude regions. The clothing requirement therefore is quite unique. It also faces a lot of constant law and order scenarios. We had a look at the latest anti-stone pelting suits of the State police. We also understood the issues with long trails made by the police to hunt down militants. The usual 3-4 days search operations can be very tedious.

We first interacted with various IPS officials and constables in a combined meeting organised by the Jammu and Kashmir IGP. At the district police lines we met many constables. We wore the heavy bullet proof jackets and headgear, which we found extremely heavy and almost impossible to move after few hours. In Jammu and Kashmir, we noticed that each police official in winters, looks different from the other because of using jackets that has design and colour variation.

Interviews were conducted with:

Jammu & Kashmir Police, Head Quarters, Jammu

Mr. Mansoor and Mr.Vinay Kumar, Mr. Amit, KPS, Mr. Arun chowdhary

Mr. Vinay Chandran, DySP, District Police Line, Mr.Vinay Kumar, District Police Line

Kashmir Police Team, Civil police line, Srinagar

Number of Questionnaire filled : 42 + online questionnaire



All the images captured during the visit of NDBI design team at Jammu & Kashmir Police, Head Quarters, Jammu.

Maharashtra Police

19th November to 20th November 2012

Maharashtra is popularly known for its movie production. It is the second most populous State after Uttar Pradesh and third largest State by area in India. Maharashtra is supposed to be the wealthiest State in India and contributes heavily to country's GDP. Mumbai is the capital of Maharashtra and is also known as Indian financial capital. Maharashtra, a highly industrialized State with large urban conglomerates, has adopted Commissionerate system for policing its large cities. The State has 10 Commissionerate and 35 district police units. It has one of the largest police forces in the country. There has been a great drive to modernise the police force after the attacks of 26.11.2008.

We started our research at the police headquarters, where we had one to one meeting with various IPS officers. We headed towards JAPU, where we met Niket kaushik who felicitated us to meet various police officials. We visited motor transport department the next day and took pictures and heard the issues related to transportation and uniform. We also visited Force one at Kalina. It is a new addition to Mumbai police after the 26.11.2008 attack. We saw the tactical uniform of the commandos and visited the police stores to take a look at the quality and issues of the products supplied by the State police.

Interviews were conducted with:

Mr. Amitab Gupta, IG, Police Head Quarters, Mumbai
Mr. Sanjay Pandey, DyIG (SRPF)
Mr. Surya Pratap Gupta (ADG)
Mr. Mangoankar (ADGP)
Ms. Archana Tyagi, IPS (ADGP)
Ms. Shalini Sharma, Inspector (Detection Crime Branch) Mumbai Police
Ms. Sunita Madhukar, (Constables) Crime Branch, Mumbai Police
Ms. Jayshree Palve, (Constables) Crime Branch, Mumbai Police
Ms. Vidya Gaikwad (Constables) Crime Branch, Mumbai Police
Motor Transport Section, Nagpada, Mumbai
Force One, Special Commando force, Kalina, Mumbai
Mr. Vijay Shugan, Additional CP, Mumbai

Number of Questionnaire filled : 2 + online questionnaire



All the images captured during the visit of NDBI design team at Police Head Quarters, Mumbai

Sikkim Police

27th November to 29th November 2012

Sikkim is a popular tourist State. Situated in North east of India, it is a serene and a green place. The State borders Nepal to the west, China's Tibet Autonomous Region to the north and east, and Bhutan to the southeast. The Indian State of West Bengal lies to the south.

Sikkim is the least populous State in India and the second-smallest State after Goa in total area. The State is geographically diverse due to its location in the Himalayas; the climate ranges from subtropical to high alpine, and Kangchenjunga, the world's third-highest peak, is located on Sikkim's border with Nepal.

Sikkim police at one point of time had a blue coloured uniform up till the sub inspector level. The uniform was considered very smart and was popular amongst tourists. After complains from the police personnel the State police went back to khaki uniform to maintain uniformity.

We visited police headquarters at Gangtok. We met a few IPS officers there. We met women police constables in the afternoon at the headquarters itself. The next day started with a visit to Armed Reserve police in Pangthang, which is based in a serene area a few kms away from Gangtok. We also visited tourist check post, and understood the duty and role of their work. We understood the need of protective gear in snow filled area. We also visited the store at Gangtok to collect various material and product samples.

Interviews were conducted with:

Mr. Prawin Gurang, SKP, Police Head Quarters, Gangtok

Mr. Akshay Sachdev, IPS (IGP) PHQ, Gangtok

Mr. Sudhakar Rao, IPS, PHQ, Gangtok

Meeting with Woman Constable, PHQ, Gangtok

Mr. Tashi Wangyal, Commandant, Armed Police + Special Task Force , Panthang, Gangtok

Commando Team, Armed Police + Special Task Force , Panthang, Gangtok

Check Post Department, Border Police Force, Gangtok

Number of Questionnaire filled : 23 + online questionnaire



All the images captured during the visit of NDBI design team at Police Head Quarters, Gangtok

Observations related to uniform

Observations related to uniform

After meeting all the police officials during our visits, we had noted various important points. The points mentioned below are issues highlighted by the police officials during the interview sessions.

About the basic uniform

- The uniform is not uniform.
- The basic fit as well as the khaki shade changes from policemen to policemen.
- The uniformity is missing because each one buys their own fabric and gets it stitched from their own tailor.
- The cost of material and stitching of uniform exceeds the allowance given by the government. Policeman has to spend extra from his own pocket.
- The fabric quality provided is not good therefore people pick whatever shade they get in better quality fabric as per their convenience from various brands like OCM, Digjam etc.
- The shirt fabric is as thick as the trouser fabric. Though it gives a solid look to the shirt, the thickness makes it inconvenient for hot climate.
- There must be two separate uniforms. One for the indoor duty and one for the outdoor duty
- The current shirt and trouser style uniform is not suitable for the outdoor law and order scenario.
- There are not enough spaces to carry personal objects or official objects in or around uniform.
- The fabric quality is poor and needs to be looked at.



All the images captured during the visit of NDBI design team at different places to understand the uniforms and its requirements.



29 All the images captured during the visit of NDBI design team at different places to understand the uniforms and its requirements.

Shirt

- The length of sleeve is some times full and some times short. The fold size also varies.
- The variation in sleeve length creates a lot of confusion. Some wear them full sleeve and some short sleeve.
- The general demand is to make both the options available separately without having to fold the full sleeve.
- The fabric for shirt is thick and should be light weight. It cannot be the same trouser weight material.
- Two shirt pockets are smart but have no space for keeping pen or other needful objects.
- Times have changed and people have to carry a lot more objects during work hours.
- Some people have made a small space for pen to fit in the pocket.
- The pockets are held with two snap buttons. Ironing leaves an impression on the pocket, making it look shabby.
- Collar inside tears fast and also gets dirty the most. Can be lined with another fabric.
- The insignias are attached to the shirt with a pin, which make holes in the shirt fabric.
- During law and order situation shirt is often held by attackers and the buttons come off. Needs better joinery.
- For the ceremonial purpose, cotton shirts need to be starched for the elegant and crisp look, but the starched fabric cuts the skin.



All the images captured during the visit of NDBI design team at different places to understand the uniforms and its requirements.



All the images captured during the visit of NDBI design team at different places to understand the uniforms and its requirements.

Trouser

- Trousers have no prescribed fit and are mostly stitched by different tailors.
- The fit of trouser varies from tight to loose fit.
- Trouser has only two pockets that are insufficient to carry most of the needed belongings.
- The pockets can carry cellphone etc but the fit of the trouser doesn't allow it to carry them smartly.
- The objects kept in the pocket are clearly identifiable from outside and therefore makes the trouser looks shabby.
- Pocket edges get dirty and torn quickly.
- Stitch quality of the shirt and trouser is not much of an issue. It could be stronger or double stitch at certain stress points like crotch or under arms.
- Shirt and trouser are tightly held together with a belt. This does not allow free movement of hands above the shoulder level.
- It is difficult to sit down completely and get up because of tight fit trouser. The fit is good for a smart look but possibly needs stretch areas for functional purposes.
- Trouser has three loops and a belt is passed through them. With three loops, belt cannot stay firmly in place.
- Trouser hem gets torn often.
- For those who use two wheelers (bikes) for commuting, the oil and grease marks from kick starting the bike stains the bottom part of the trouser.



All the images captured during the visit of NDBI design team at different places to understand the uniforms and its requirements.



All the images captured during the visit of NDBI design team at different places to understand the uniforms and its requirements.

Colour

- Khaki is a popular colour and police is often refereed or connected with the khaki colour
- It is a colour that was brought to policing by Britishers. The idea was to camouflage the dirt.
- Khaki colour is fine for most of the constabulary level policemen.
- Most of them don't think the change is needed or possible. They believe changing it will reduce fear or respect amongst people.
- Higher ranked police officers have mixed point of view.
- They believe that khaki is a British legacy and can be discontinued with.
- Colour khaki is good for Indian dusty environment.
- Khaki colour also suits Indian skin type.
- Police uniform across the States has various shades of khaki. No one shade is prescribed or standardised.
- In the night, the khaki shade almost looks like white due to yellow streetlight. The colour cannot be easily identified by general public, unless observed carefully.
- Apart from the Police department, the colour khaki is being used by many other departments like, municipality staffs, private agencies, postmen, fire department, etc. Most of the police personnel would like the colour Khaki to be used only by police.



All the images captured during the visit of NDBI design team at different places to understand the uniforms and its requirements.

Headgear

- Beret is smart but made of wool. Not good at all for hot weather.
- Lot of people complain of headache and hair fall.
- Beret leaves a mark on the forehead.
- Beret has to be constantly adjusted to get the right slant.
- It is difficult to run with beret or peak cap. One hand is occupied in making sure it doesn't fall off while running after some one.
- Peak cap looks smart but only suitable for ceremonial purposes. It is difficult to find a right fit. It leaves mark if it is tight or has to be adjusted constantly, if it is loose.
- Peak cap has a plastic lining inside that makes it very sweaty. The cap gets very dirty and is almost non washable. It is almost non-usable after a year.
- Colour of beret changes from State to State. It needs uniformity of colour as well.
- For women police, caps are uncomfortable when they have to make a hair bun.
- Helmets used in Law and Order situation are very heavy, hard to wear on, it keeps falling. Woman police gets a single size helmet.



Belt

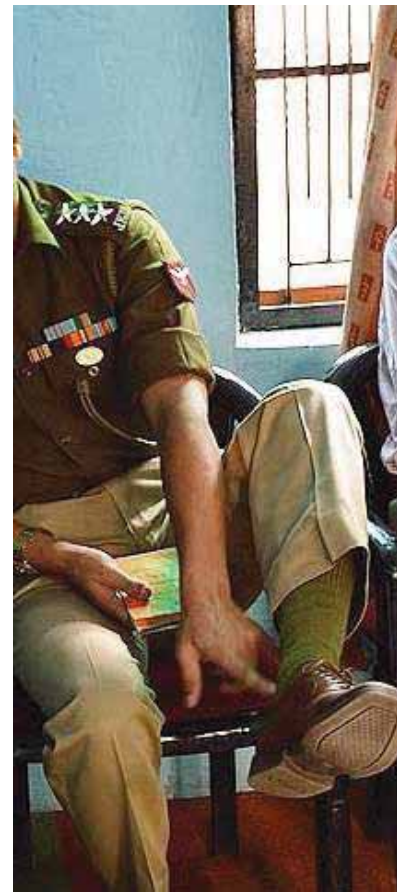
- Shirt and trouser are tightly held together with a belt. This does not allow free movement of hands above the shoulder level.
- The higher ranked officials mostly wear prescribed leather belt. Policemen from other police ranks have started wearing different kinds of fabric or nylon web belt.
- It is too wide and too tight which sometimes give stomach ache.
- Metal belts are too wide and big. It pokes in the stomach while bending forward.
- It is held by three loops only. The belt keeps shifting positions.
- Colour of belt varies from same brown to khaki to black for various cadres.
- It has no options of carrying cell phone, baton or keys etc, like other police forces over the world.
- Once a revolver is hung from the belt, the pockets become inaccessible.
- Cross belt (or) same brown belts uncomfortable, tedious and takes a lot of time to wear. Most people recommend that it should be removed.



All the images captured during the visit of NDBI design team at different places to understand the uniforms and its requirements.

Socks and shoes

- Socks are found in many shades and fabric quality. Different people prefer different quality depending on the amount their feet sweat.
- Bad quality elastic makes the socks bunch up at the ankle, which shows while walking or when trouser is lifted.
- Polyester socks are often used and are worn for two to three days in a row.
- They stink when the shoes are removed.
- Socks of all shades of khaki are found in police uniform
- Shoes are the most common complaint point in all our discussions.
- Leather shoes are very uncomfortable to wear for long duty hours.
- Police on the streets and even in the office wear the same shoes. It is practically impossible to stand on the streets or run in a law and order situation.
- Breathable material and spongy sole is needed for the street duty.
- Jungle boots are used by a lot of duty officers.
- Ankle boots are worn for ceremonial purposes.
- Colour (shade of same brown) of shoes varies from person to person. Black is easy to maintain for a continuity.
- Higher officials wear same brown and others wear black shoes.
- Shoes are most damaged amongst the uniform articles.
- The shoes do not last the prescribed time and cost a lot to buy again and again.
- Almost everybody in the police wears a different style of shoe.



All the images captured during the visit of NDBI design team at different places to understand the uniforms and its requirements.

Winter wear

- Coat parka is supplied by many States. It is sufficient for the extreme cold but at the same time very heavy to carry.
- It becomes difficult to move after wearing it.
- No sizes are available for women, so they wear the smallest man size. It becomes too bulky for them.
- While walking constantly, jacket becomes too hot. But it cannot be removed because it has no layers. Wind-chill can kill in extreme cold scenarios
- Layered clothing is preferred.
- Everybody buys their own preferred jacket from the market, therefore in winters every policemen looks different. Gets very confusing for the local public.
- The jackets are not waterproof or wind-proof.
- In lesser cold areas jerseys are worn. The usual quality is bad.
- Everybody wears different brand and therefore many shades of it are prevalent.
- The jackets have no place to attach insignias or show the rank.
- For the winters, Angola fabric is used for the uniform. It is itchy and causes skin irritation.



All the images captured during the visit of NDBI design team at different places to understand the uniforms and its requirements.

Rain-wear

- No prescribed rainwear. Some States provide khaki colour raincoat.
- No one style of raincoat available.
- Most of the people buy their own raincoats.
- The colour of the raincoat hardly ever matches the khaki shade of the uniform.
- After wearing raincoat, the identity of police is lost.
- Have no proper pockets to keep objects safe from rainwater.



All the images captured during the visit of NDBI design team at different places to understand the uniforms and its requirements.

Items carried by the police person



All the images taken from Google Images for the purpose of understanding the products used by the policemen during the duty hours.



All the images taken from Google Images for the purpose of understanding the products used by the policemen during the duty hours.

Insignias

- Hierarchy in the Indian police force is clearly defined. Uniform insignias are very good in distinguishing hierarchy.
- Metal insignias are prescribed and are worn and understood by most of the police personnel. However attachment of insignias to the uniform has several issues such as it tears the fabric and makes permanent holes on the uniform.
- Many people use plastic State emblems. Embroidered State emblems are also available and used and have been suggested as comfortable option.
- During law and order situation name badges are the biggest casualty. Most of the people have lost them often.
- During night operations metal insignias reflect light and therefore they become extremely risky.
- Jammu and Kashmir police uses embroidered patches during operations.
- Most of the police personnel find the lanyard inconvenient as it gets often caught either in their own equipment's or by the offenders during law and order operations
- Anklets used during ceremonial purpose are made in hard PU materials. It causes pain in shin area.



Fabric availability issues

- Availability of similar quality fabric changes from State to State and difficult for the local vendor to match the same quality.
- Fabrics are available with OCM, Digjam and with local uniform maker.
- No stretch in the fabric.
- Not wrinkle free.
- Fabric ironing is constantly needed.
- Fabric fades easily.
- Leaves white sweat mark.
- Cotton is now limited to ceremonial occasion.
- Cotton laundry cost is too high.
- Skin chaffing is common during parade.

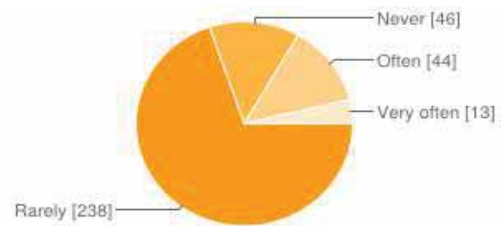


All the images are captured by the NDBI Design Team to understand the different fabrics used by the Policemen.

Public opinion about the police uniform

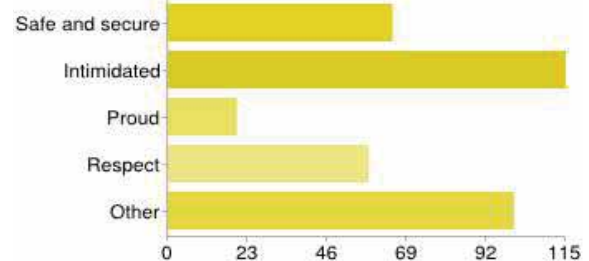
how often do you interact with police?

rarely	66%
never	13%
often	12%
very often	4%



What feelings do you get when you see a policeman in uniform?

Safe and secure	22%
intimidated	39%
proud	7%
Respect	20%
others	34%



what do you think of current police uniform?

smart	3%
untidy and shabby	23%
Depends on who wears	50%
others	24%

what do you think of women police uniform?

smart	17%
too casual and undefined	46%
Not suitable for Indian culture	7%
I am not sure what they wear	21%



All the images captured during the visit of NDBI design team at different places to understand the uniforms and its requirements.

International Benchmarking

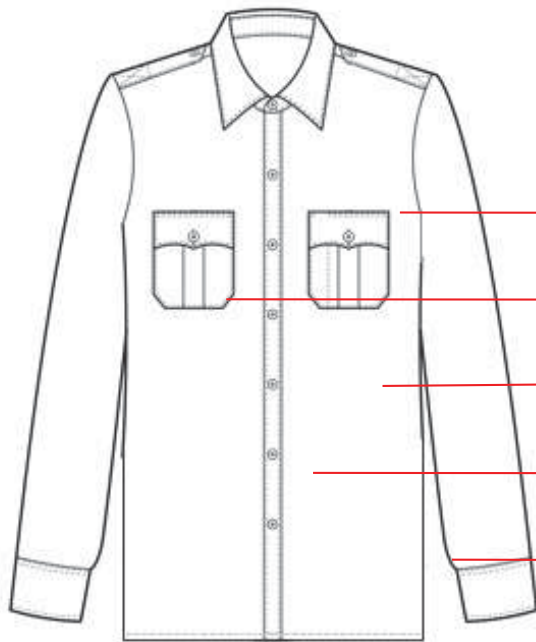


England, United State of America, Italy
South Korea and Singapore

All the images taken from Google Images for understanding the different uniforms around the Globe.

Defining Project brief

Overall understanding of the existing working uniform



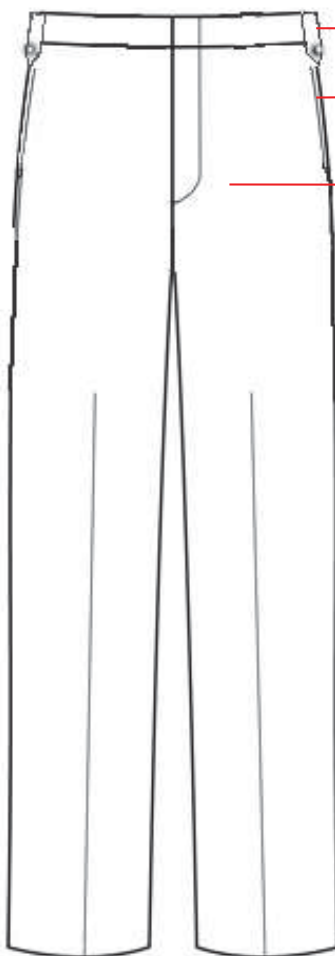
→ epaulette for insignia

→ stitch loops for name bad

→ shaped bellow pockets

→ placket with 7 buttons

→ Full Sleeves



→ three loops for belt

→ two side pockets

→ zipper front

→ straight fit

Shirt:

Poly Cotton Blended full sleeve fitted shirt with epaulettes and two front pockets

Trouser:

Poly cotton blended straight fit trouser with two side pockets

Project brief based on the field studies

There were several reactions related to the **type of fabric** being used now, and what would be preferred by the policemen. Based on our analysis, the SMART POLICEMEN UNIFORM fabric should have the following attributes:

Stretch Fabric

Better Movement improved performance fewer damage or tear knit is stretchable 6-8 percent Lycra spandex NJ Police uses stretch.

Sweat Absorbing

Indian climatic condition falls in tropical climatic condition that is mostly hot during the day time around the year. For the same, we need a material with wicking performance to absorb sweat and provides a neater look. The same can be adopted from Sportswear fabrics using their Hydrophobic and Hydrophilic properties. The brands which offers these products are Nike, Reebok & Adidas.

Strain Proof

Makes uniform look neat & clean, low maintenance cost, prevents uniform from getting wet in drizzle.

Dupont teflon coated fabric is widely used for the stain proof resistance. 3M were the first manufacturer for the same with the product called Scotchgard.

Abrasion Resistant

To have a better resistance, NYPD police uses Ripstop weave in their uniform which is popular Cordura/ Softilea/ Kevlar. This increased the durability of the fabric with economical price and it can be used in some areas of the Uniform.

Wrinkle Free

Gives Smart look, Easy to maintain, Low maintenance cost, Polyesters is wrinkle free in many ways, Even wool is wrinkle free. Wrinkle free cotton is also available these days.

Abrasion Resistant

Hygienic for long use, Silver used as anti bacterial material, antibacterial finishes are also available.

Design Brief given by BPR&D:

- 1) The uniform should provide occupational Protection.
- 2) Different uniform designs and specifications for different weather condition.
- 3) Should be comfortable to wear and easy to maintain.
- 4) Should keep in mind the working conditions and should be suitable for tough working conditions. Should not hinder the performance of the policemen while on duty.
- 5) Should be smart and professional and convey authority.
- 6) Should give a unique identity to the policeman and at the same time make him proud of it.
- 7) The accessories / attachments should be such that they reflect the uniqueness of the Indian Police.

NDBI team divided the above seven points into two categories.

First, point number 1,2,3,and 4 were categorised as points that needed physical interventions at a design level.

Second, point number 5,6, and 7 were categorised as points that needed psychological interventions.

After analysis, NDBI team concluded that the challenge was to bring a sense of trust, image re-building, and friendliness among Indian citizen through a proposed SMART POLICEMEN UNIFORM.

Final objective was to improve the working conditions of police force in different climatic conditions, and build an image representing trust and reliability.

Design Conceptualisation

The design process included police force personnel through out the conceptualisation phase. NDBI follows a well-known design methodology to develop any new product or services. The designing of SMART POLICEMEN UNIFORM followed the same process. In particular, all the field data was chunked into different categories of the dress including Shirt, trousers, insignia, shoes, jacket etc. Each component was developed independently after consultation with stakeholder.

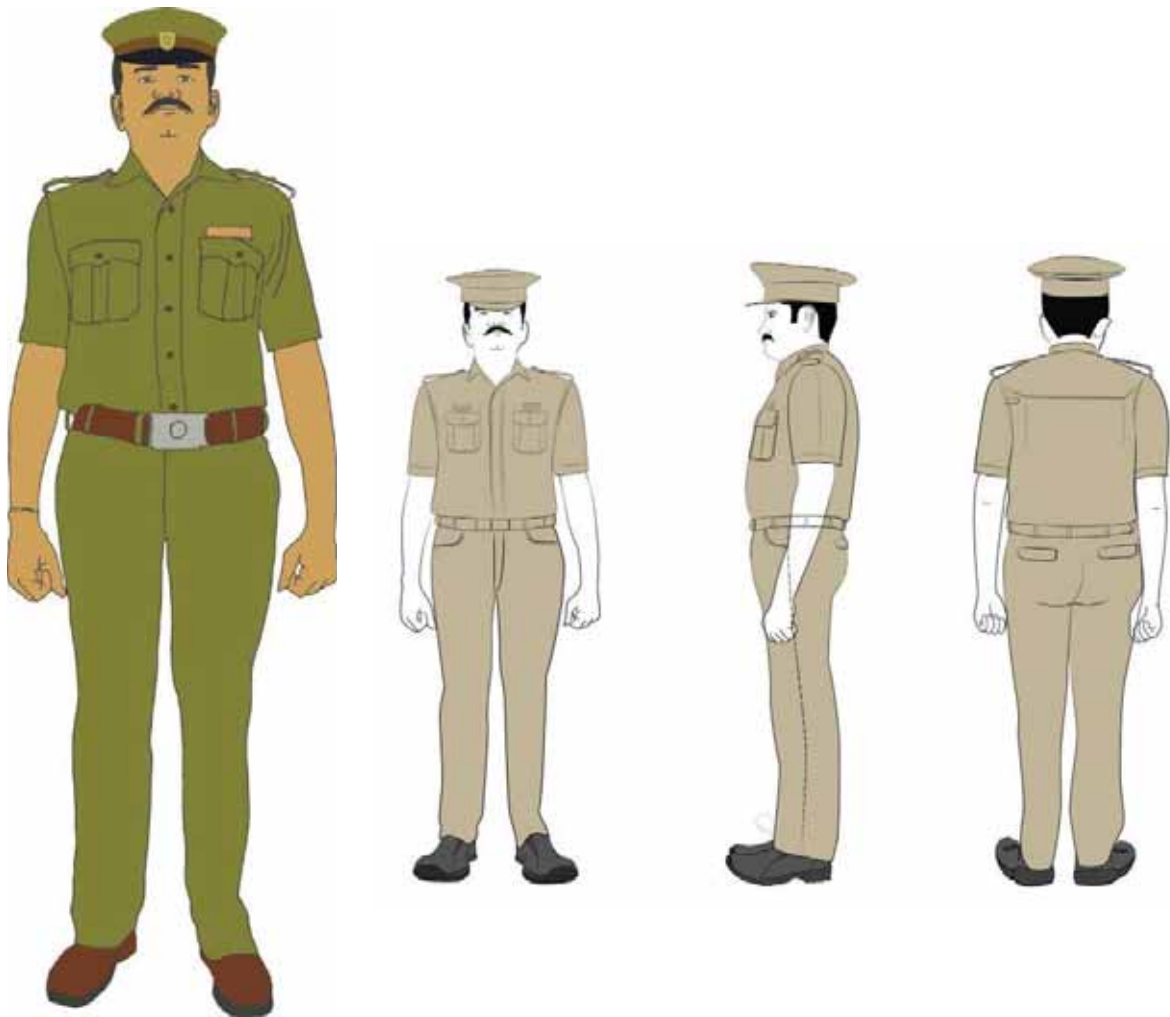


Images above depicts Interactive sessions with police personnel at Delhi

After collecting data at a national level, NDBI team carefully sorted out images that could be worked on. Furthermore, used that image analysis to identify design opportunities. All the design insights were converted into design sketches for further development.

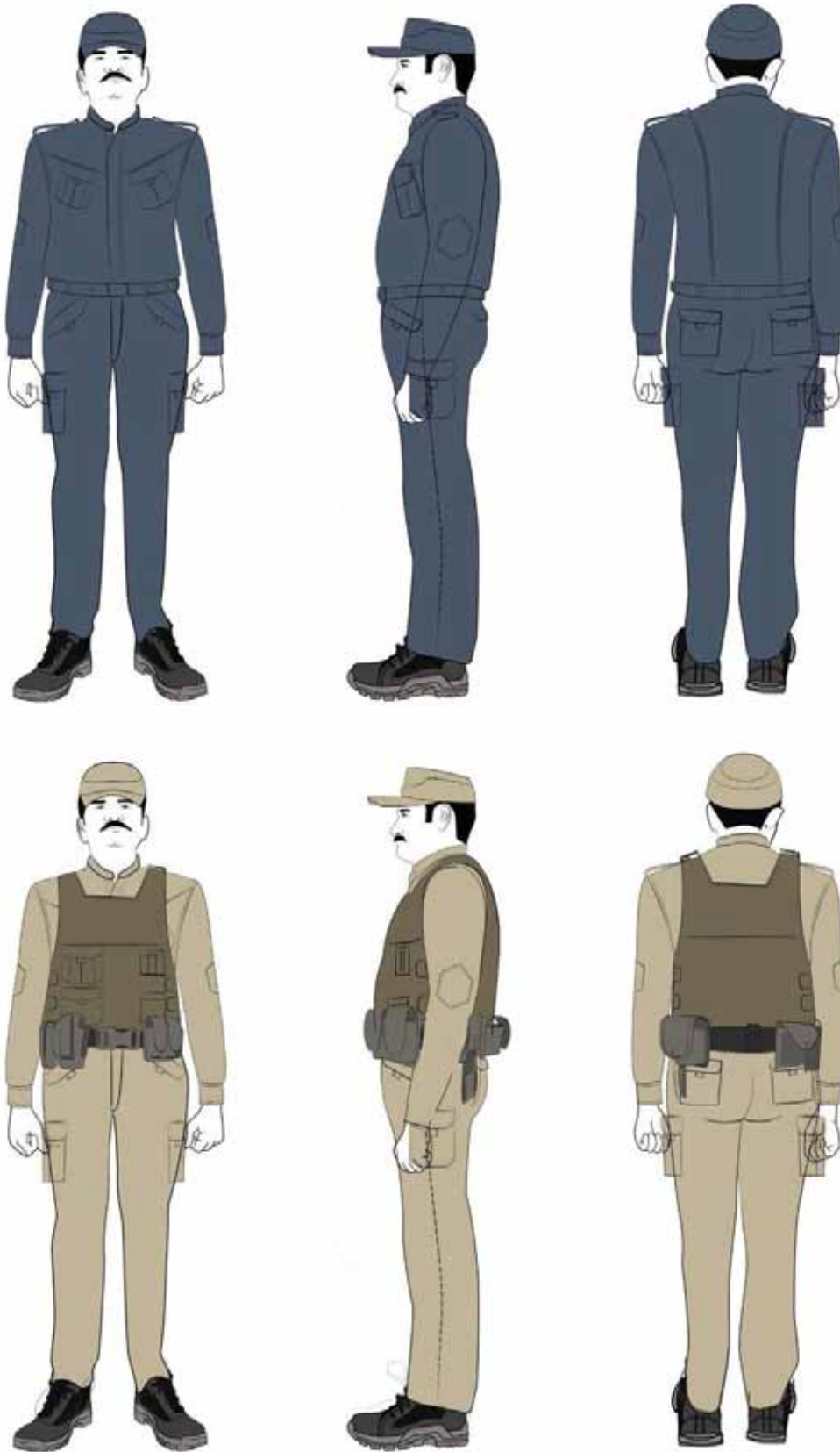


In the design process, several prototypes were made and discussed with the BPR&D team. This section will cover some examples of prototypes made before reaching the final design options. We are dividing all the work into different headings such as full dress, insignias, caps, shoes etc.



The image above depicts existing uniform and different elevations.

Trying out different shades on the uniform: Men

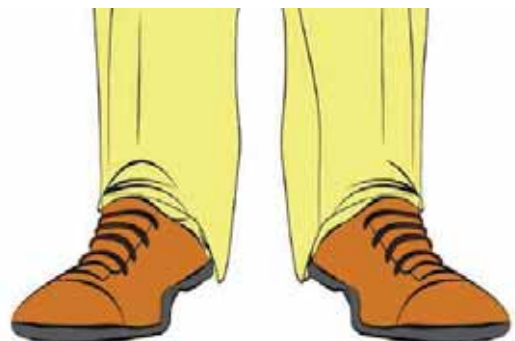


Checking out upper coat/vest and matching with regular uniform

Trying out different shades on the uniform: women



Different types of shoes were explored for separate tasks



After analysing different types of belts and accessories, several concepts were explored. In general weight of the accessories and how it will be useful in the Indian scenario was considered in the decision making process.



3D simulation of the belt space was made to receive feedback from the police officials.

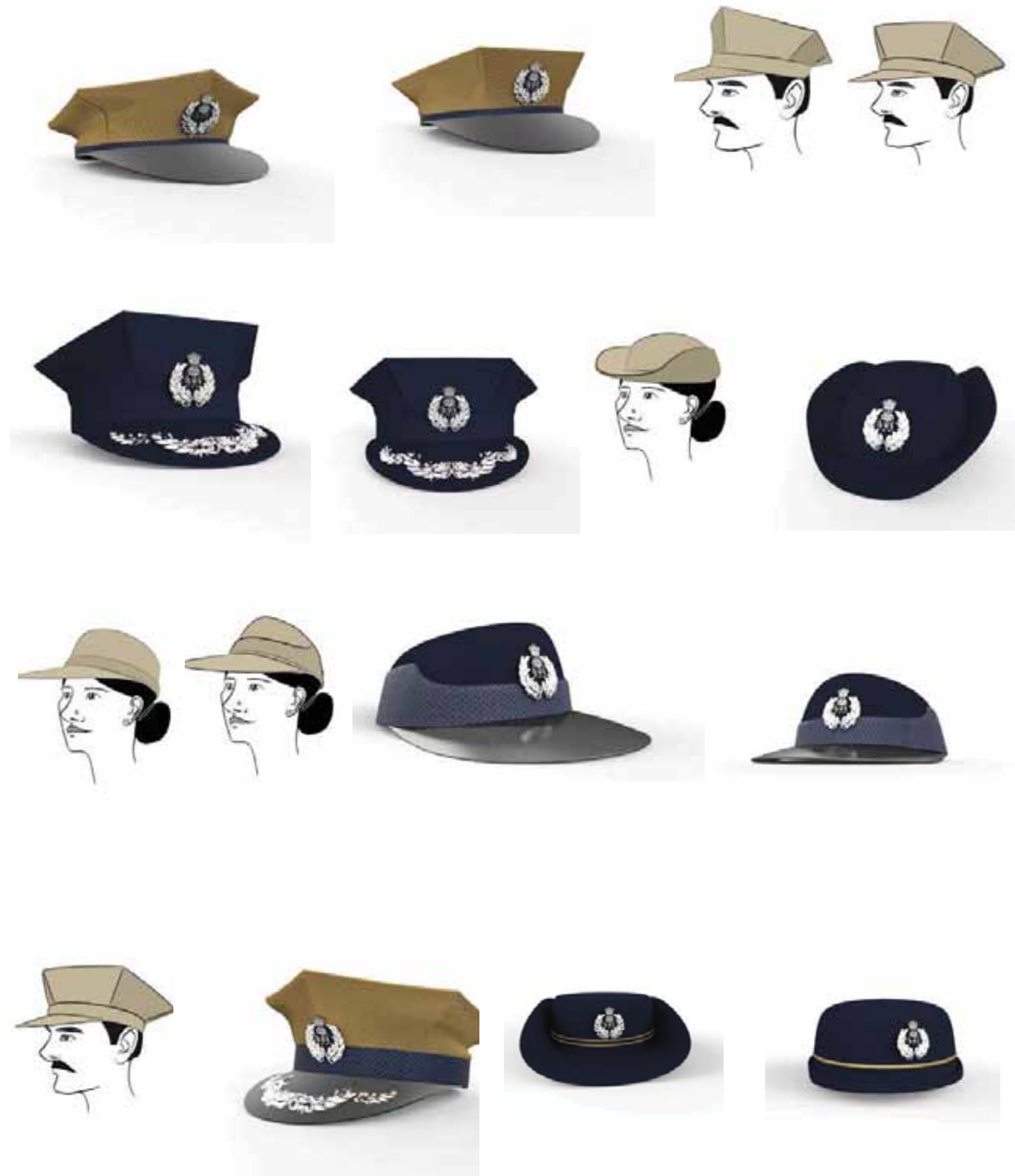
Design concepts of a CAP

Some of the major findings related to cap were- permanent marks on forehead after usage, hair fall complains, beret doesn't sit properly on head because hair is tied, it is made of wool and is hot for summers, difficult to maintain its shape all the time. The challenge was to make it lighter and simple, without any compromise on people's perception about police authority.



Images depicts different design concepts explored in the design process

Cap is an important component of the dress. We had considered variety of finishes and forms that could accentuate the police authority in general among civilians. How different insignia will fit on one standard cap was a challenge. Issues related to how one cap will be used for different occasions or for single occasion were discussed in regular meetings between NDBI and BPR&D.



Images depicts different design concepts explored in the design process

Working Jacket for SMART POLICEMEN

The purpose of the working jacket is two fold. One, it could be used on a regular uniform. Second, it could be used in situations where police personnel may not be wearing a uniform, but quickly wear this jacket to identify him self as a policeman.

These concepts also pushed us to think about a particular font that could be used to write POLICE on their jacket, and other branding materials.



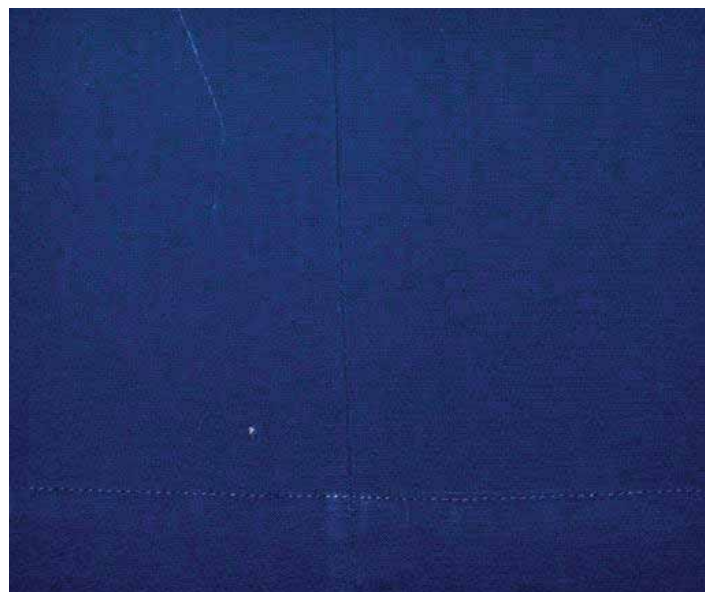
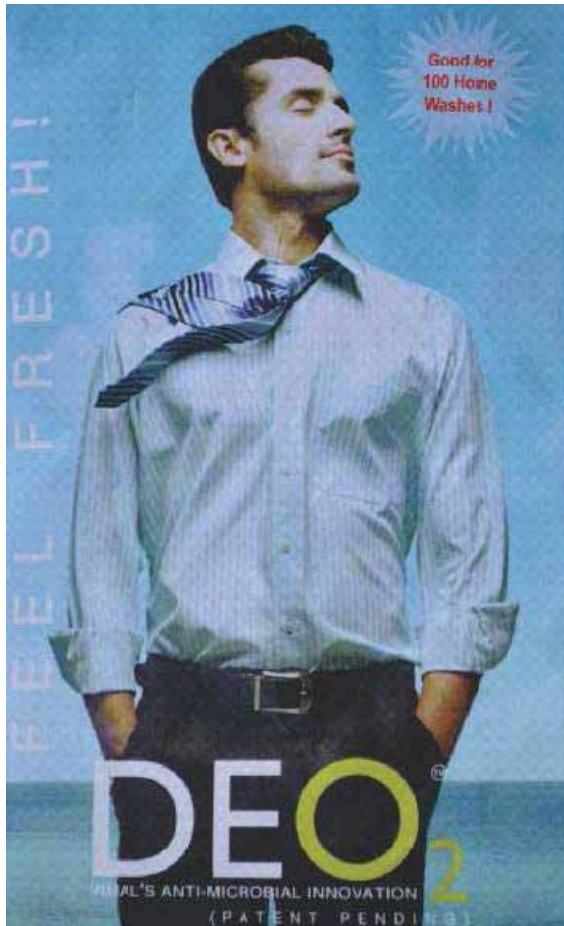
Conceptualising overall look of the policemen

While we were developing different uniform components, we were always mindful of how every component will come together. Below, you will find certain images that demonstrate how different fabric shades appear in different design styles.



Fabric selection process

Through the discussions, we were always looking for a fabric that could offer the following: 1) Moisture Management, 2) Stain Release 3) Anti Microbial, 4) Anti Dust, 5) Smooth Appearance, 6) Anti Pollen, and 7) Stretchable.



Conceptualising uniform: shirt and trouser

Our extensive field research had pointed out three major points: first ergonomic aspects, inconvenience and hazardous details, and unsuitable form and functionality. There were many issues that we came across in the existing uniform:

For instance, there were too many shades of buttons, sleeve folding a tough task, metal buttons hurt and tears apart dress in a long term, shirt hemming was visible through the shirts, trousers usually bulge out.



Shirt conceptualization in detail

The shirt needed major design changes in terms of accommodating day-to-day items all the time including glasses, pen, cell phone, and small diary. It was reported that most of the policemen had trouble with shirt collar. Due to constant exposure in the hot-humid environment, they had to wash their shirts on a daily basis. We explored different ideas of designing removable collars on a daily basis. This may increase the life of whole shirt.

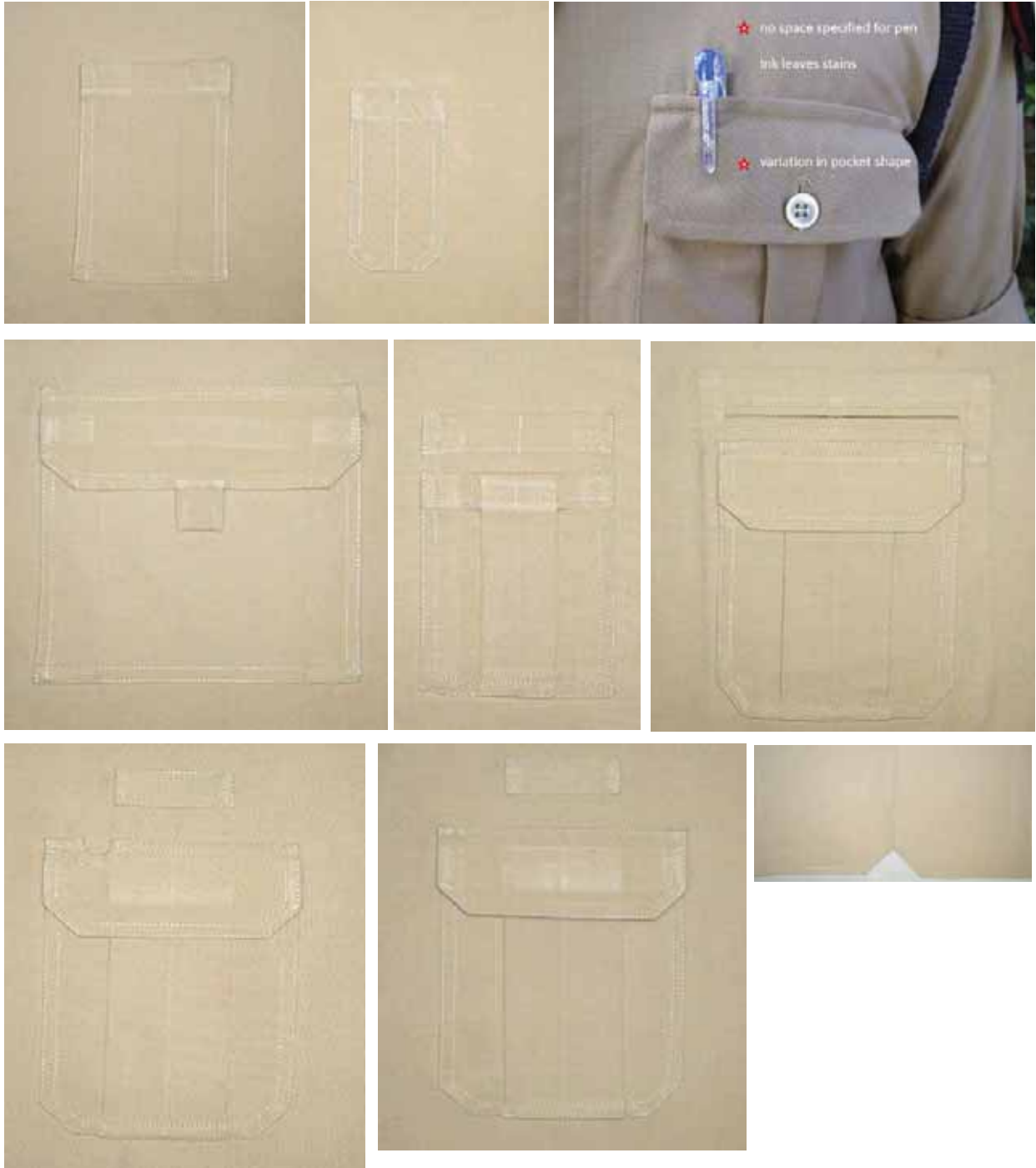
Trousers were mostly tearing off from the hemming areas due to improper height adjustments, dust accumulation at the lower part from the shoes and road surface. We explored design options that strengthen the hemming portions and increased their life span. In the shirt, several collar design options were explored from the aesthetic viewpoint. All the decisions were made in consensus with relevant stakeholders. How do we design plate free uniform that doesn't have iron marks? How do we avoid edges that don't get torn in a long run?

All the design concepts were explored around these design insights.



Shirt conceptualization in detail

Through our field studies, we came across more than 15 types of pocket designs. Unfortunately, none of the pockets were fulfilling the needs of police officials. This was mainly due to lack of specified space. For instance, several policemen complained about ink leaking that leaves stains, variation in pocket shapes due to different tailors and lack of any standard protocol that needs to be followed by every one. We took this situation as an opportunity to develop a standard design that could fit most of the day-to-day items, and is consistent across police forces.



Re-visiting INSIGNIAS

From the field studies, we had interesting findings related to how metal insignias were perceived as authority, despite heavy damage that these metal insignias bring to their uniforms.

In the night, there were concern about metal being reflective leading to life risk. Fixing of name badges were not worked out well. All the time, their nameplates were falling and not straight.

Other insignias on the shoulder and upper sleeves were attached via safety pin, embroidered fabric patch attached with snap buttons, and some were using Velcro. There were no standards followed across police forces.

We had proposed several options to depart from snap buttons, safety pins, to Velcro system. Additionally, get rid of metal and use fine embroidered stars and symbols to increase the longevity of police dress. Some options are shown in the image. All the proposed insignias were tested on a complete dress before taking any final decision.



Image depicts different design concepts of insignias

Shoes

From our field studies, several insights related to shoes design were obtained. First, there were too many variations of shoes across police force. There were feedback related to shoe edges that poke at the ankle grip, sole losing its grip quickly, due to high temperature sole getting softer, bikers losing their sole to silencer.

There were strong reactions related to stitching because sole and upper part were getting separated after rigorous usage. Quality of leather and its capacity to withstand water was almost negligible, whereas, one would assume that water resistivity is the least feature expected in the police force shoe.

What colour should we choose for the new uniform? Brown or black? This was extensively discussed in our meetings with BPR&D officials and later with police officers. How can we make a shoe that is breathable? End of the day, what would it cost to Police force to provide each pair? These were some of the burning questions that we dealt with in the conceptualization phase.

We would like to thank BATA for their support in building 50 pair of shoes for testing. These shoes were made as per our instructions that included:

Out-sole could withstand temperature of 300 degree C for 1 minute, impact resistant, oil and acid resistant, slip resistant, and tunnel system that distribute human body load evenly into the ground. Having actual prototype was a big help in discussing actual expectations of the police officials.



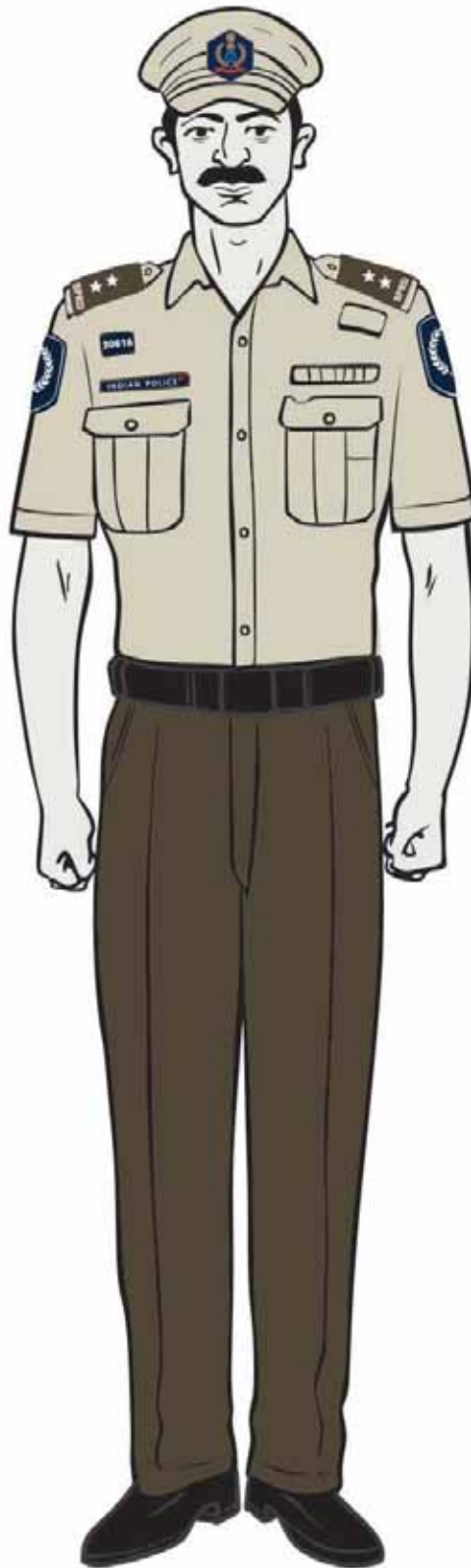
FEATURES



DESCRIPTION

The natural rubber and PU sole provides comfort in extreme working conditions. Incorporating the features and benefits of the natural range, the dual density sole construction includes polyurethane for cushioning throughout the midsole and rubber nitrile for heat resistance to 300°C on the outsole. The natural rubber sole provides the benefits of Bata's Tunnel System and multi direction slip resistance. Oil resistant area and is recommended in application where contact temperatures exceed 130°C.

Final Prototyping



Design of the Shirt

The Redesign of the Shirt (basic working uniform), comes with 'one standardized' new softer khaki shade (beige) for its smart and clean look. With a core emphasis based firmly on the vision of "Friendly Police". The shirt design has been tailored with new and clear aesthetics addressing many functional aspects of the clothing.

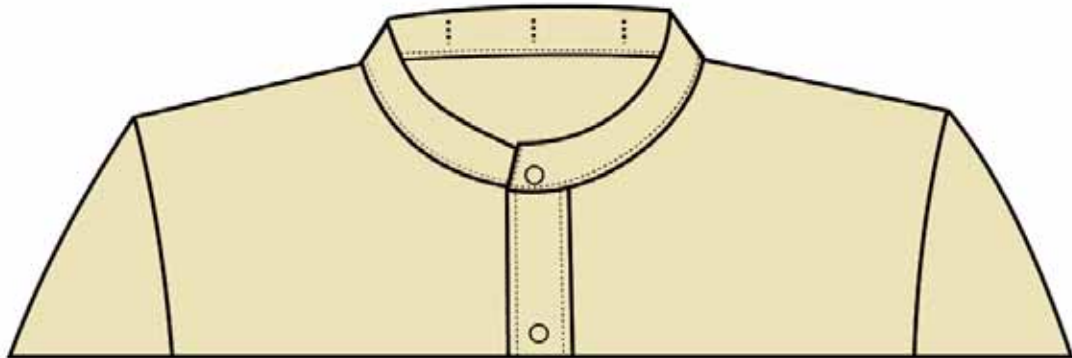
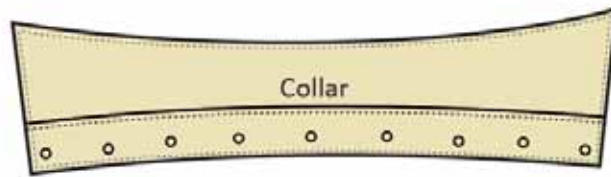
As mentioned above, the new colour of the shirt – softer khaki (beige) plays an important role in terms of psychological as well as physiological aspects. The colour is to be STANDARDISED across the country, to maintain the very philosophy of the uniform, "the uniformity". The new shirt colour enables many important aspects on the shirt, such as effective visibility of insignias, nameplate, registered number plate, medals, ribbons, and epaulettes on shoulder and the print on the back.

Shirt Collar detail

The new design detailing has been introduced in the collar of the shirt. In the new design, collar of the shirt is "detachable". In our studies, we had found that collar is the first victim of wear and tear due to constant over use of the same shirts regularly by the wearer. The life of the collar is reduced, because of its joining part with collar-band exposed to the neck part, that suffers many issues such as friction; causing fabric to rip off, sweat marks, stitch breakage, dirt, discolouration, while the rest of the shirt remains less damaged. Besides, this area is also exposed to severe brushing and cleaning with detergents while washing at home, thus reducing the life of the surface of the fabric.

So, the idea of having detachable collar, that can be reversed regularly or used fresh once the utilized side damages. The detachable collars are fastened with simple buttons that any one at home can stitch with household needles. The button hole for the collar is provided on neck band. So, it can be buttoned easily. (When the collar is not in use, the neck band, provides an elegant and traditional 'mandarin or Nehru' collar look). Since the collar making is an easier and lighter process, the wearers can choose to have multiple collars made while getting shirt stitched. As for the senior officers, the problem of official insignia "laurel leaf" embroidery falling off from the collar frequently, can also be avoided by having buttons stitched on the collar (instead of metal plate locking system used currently) on which the insignia remains safely buttoned in. It can be attached and removed as required.

Detail of Shirt



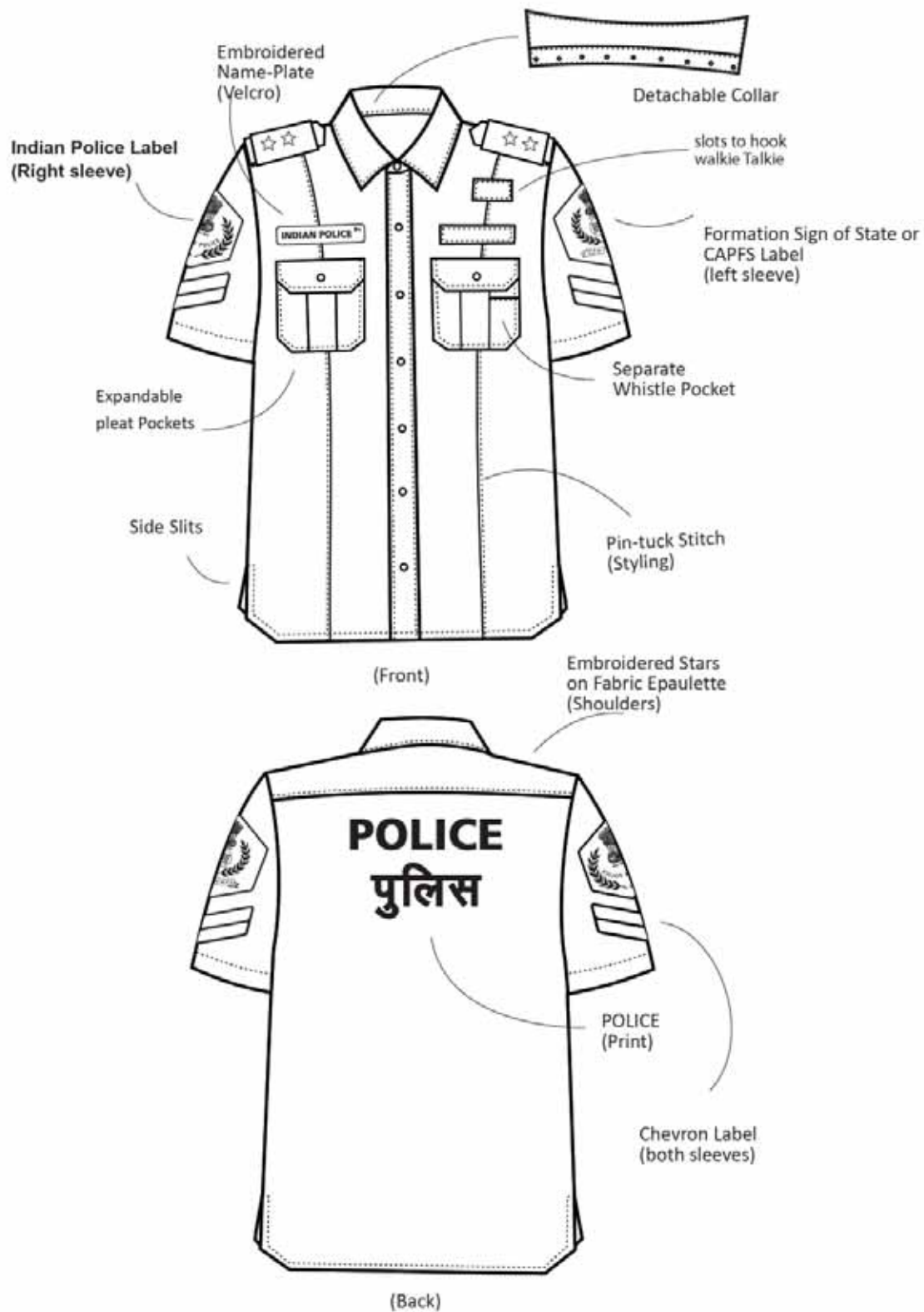
Shirt: Women



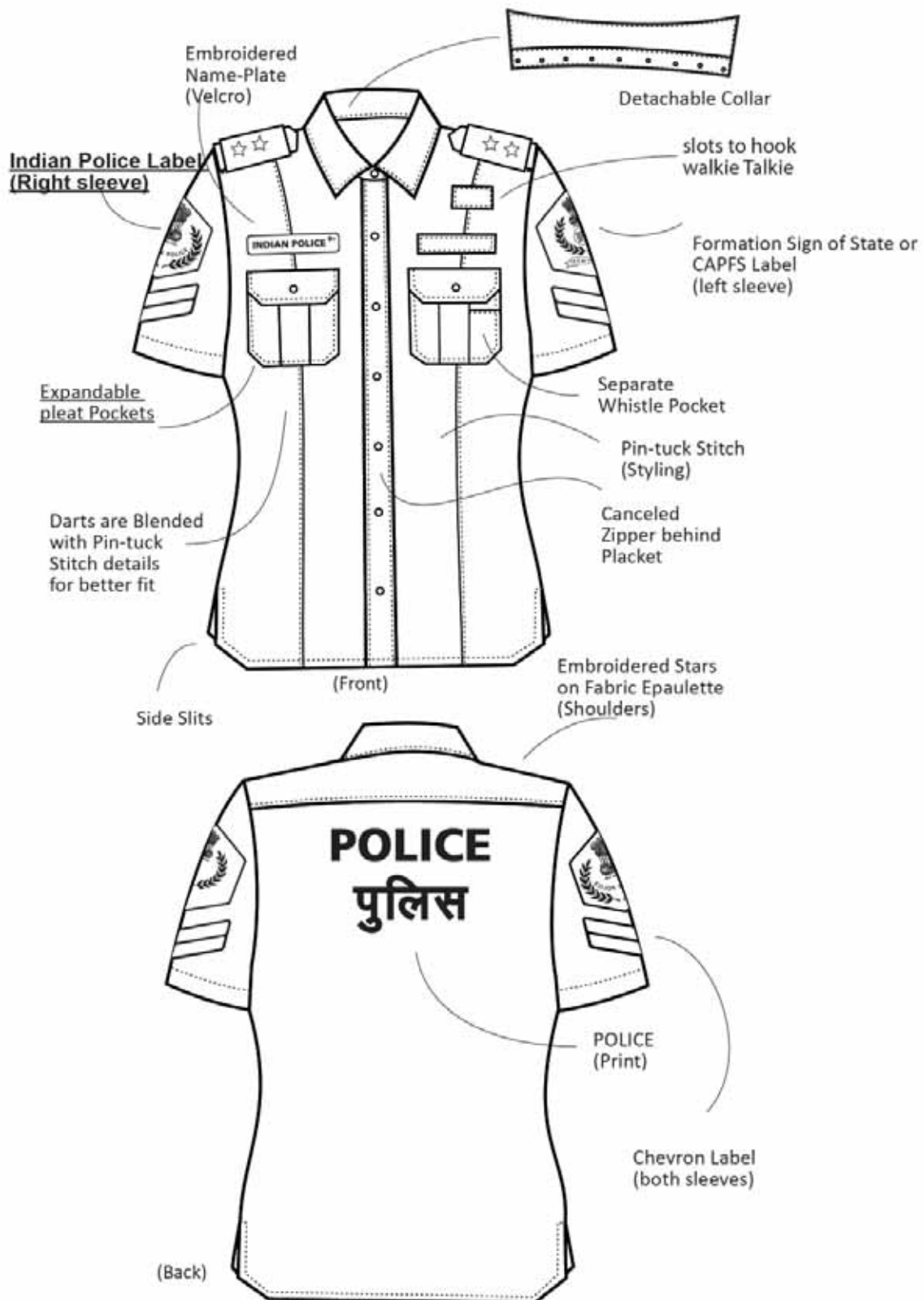
Shirt: Men



Detail of Shirt: Men



Detail of Shirt: Women



Detail of the Shirt

For the first time, the back of the shirt comes with print of POLICE (English on top and regional language below) printed in bold dark indigo colour below the shoulder line. The selected font is to be standardized and followed across the country.

The hem of the shirt has diagonal/slanted shaped slits on both the sides for ease.

IMPORTANT: As for the women police shirt, there are two specific design detailing that has been suggested. The first one is to address the issue of inner clothing seen through the gap between buttons. Primarily the fastening of women shirt is zipper, avoiding any gap and providing full lock from the top. But, to retain the look of the uniform, a look alike buttoned placket has been styled (seen from outside, it appears to be just a regular button fastening)

The second one is for the better fit of the shirt, the “dart ‘can be used through the ‘pin stitch”, to avoid the excessive fabric to match different body types.

POLICE

पुलिस

POLICE - Print on Back side of Shirt/ Duty Jacket

Detail of the Shirt

As for the name plate, the new design proposes 'embroidered fabric strips' instead of hard metal or plastic name plates which has many issues, such as, falling forward position because of its weight, hard to read the name, the size of the font can't be larger, it's metal hook that not only spoils the shirt itself, but also harms when fallen down accidentally. The embroidered design is fastened using Velcro technique, with name and blood group on it in standardized colour codes.

A dedicated flap or fabric swatch is stitched for the placement of ribbons, medals or any other gallantry award articles. This can protect the skin underneath from the hooks, as well as the base of the shirt. A dedicated flap, below shoulder epaulettes, provided to accommodate 'walkie-talkie' in case of urgent need. The same flap can also be used for spectacles too.

Detail of Shirt



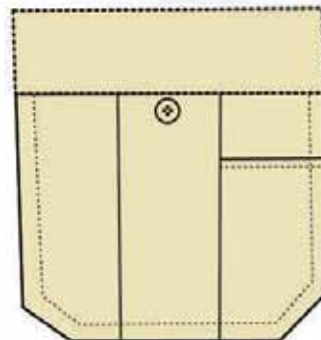
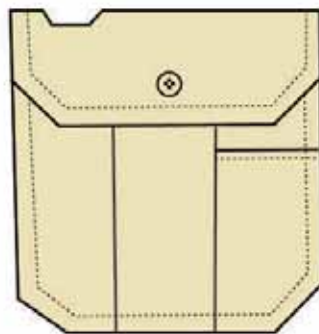
Name plate

Detail of the Shirt

The front of the shirt has new design detail, a pair of pin stitch (a subtle stitch details) starting from shoulders down to hem lines on both left and right sides runs under pockets. The similar detailing is also followed on trousers. Besides styling, these lines also functions as darts, a technique used for getting better fit, on clothing for both women and men.

The form 'hexagon or the honey bee' structure, which is also the inspiration behind the design of new uniform, influences styling details across the shirt such as pocket, insignias and hems.

Detail of Shirt



Detail of the Shirt

The pocket and its flaps have been simplified from the curved, military influenced style, for better look and functional aspect. Left sided pocket flap has a slot, to insert pens, without having to open the flap. The same pocket has a small slot outside, enabling ease of keeping or removing whistle.

Detail of Shirt

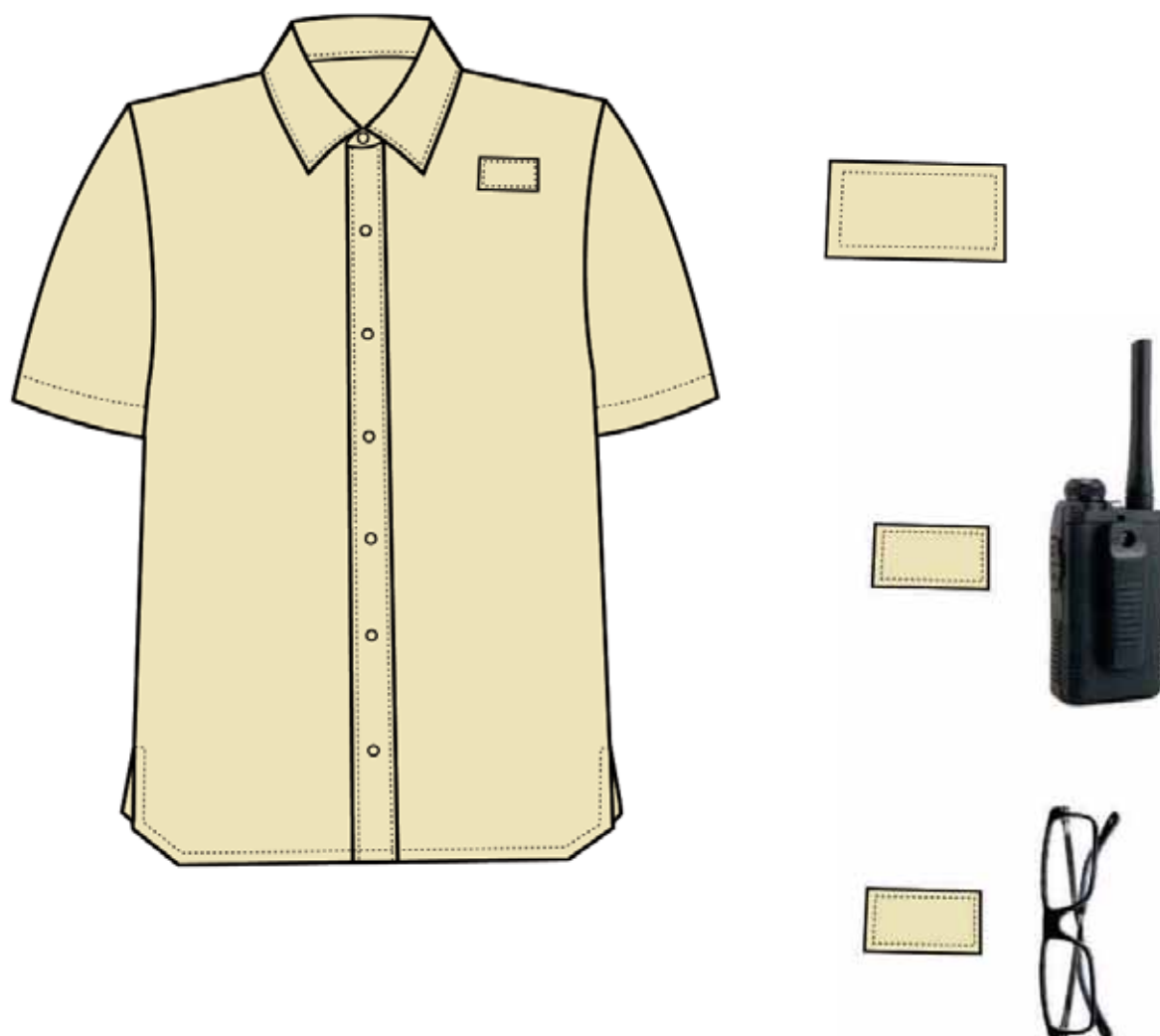


Detail of the Shirt

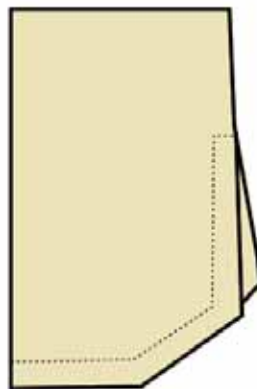
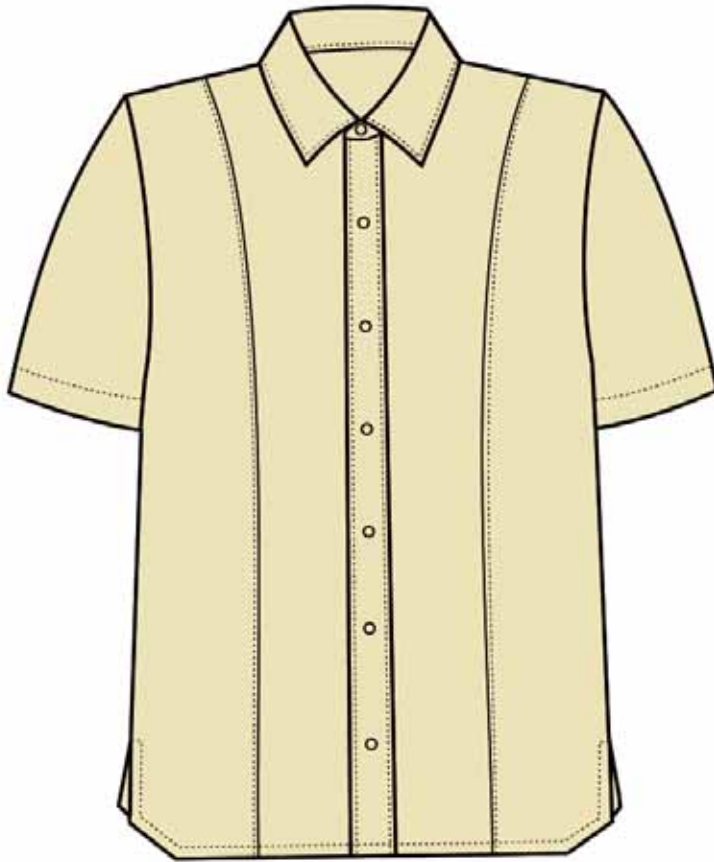
As for Insignias, a simplified and standardized hexagon form as an outline to accommodate police signs on both side of the sleeve, positioned harmoniously with enhanced chevron symbols.

For the first time, a dedicated “INDIAN POLICE” insignia sign (made of woven label or taffeta material) sewn over right hand, and for the left hand, the sign of respective departments such as, the formation signs of State POLICE, CAPFs or any other special departments will be implemented across police forces.

As for the epaulettes, a new design has been suggested, for better visibility, ease of use and simple aesthetics. It comes with, fabric envelopes of the colour same as trousers, that has stars embroidered on top. The envelope cover can be removed; it is fastened with velcro technique for easy to remove. The very epaulettes on both sides of the shoulders can be removed and attached. These subtle functions are supportive for cleaning and washing the shirts.



Detail of Shirt



Detail of Shirt



Ribbon stripes

Detail of Shirt



Detail of the Trouser

The Redesign of Trousers (Regular working uniform), just as the shirt, has its core emphasis based firmly on the vision of “Friendly Police”, enabling clear and effective aesthetics in all aspects of the clothing.

For the first time, a darker colour of khaki (earthy brown) has been suggested and accepted unanimously by all the heads of Police forces, thus departing from the age old single coloured khaki uniform. The choice of the trouser colour shade was made keeping in the mind an aspect of public friendly image. At the same time, double coloured uniform didn't compromise on the authoritarian aspect that needs to be reflected all the time from Indian policemen.

Besides the deliberate new friendly image, the darker colour of trousers have advantages over many issues, such as, less exposure of the visibility of underwear (mainly women police) when shirts are tucked in. The darker colour goes well balanced with lighter beige (softer and improved version of current spectrum of khakis) used for the new shirt design, the darker colour could minimize the visibility of the grease (two wheelers) or other stains from the road that happens frequently on the surface of trousers, because of more exposure to the road.

The Trousers now have a new design detail at front, a pair of pin stripes (stitch details) over the crease mark (it can also be used as a guide for the ironing)

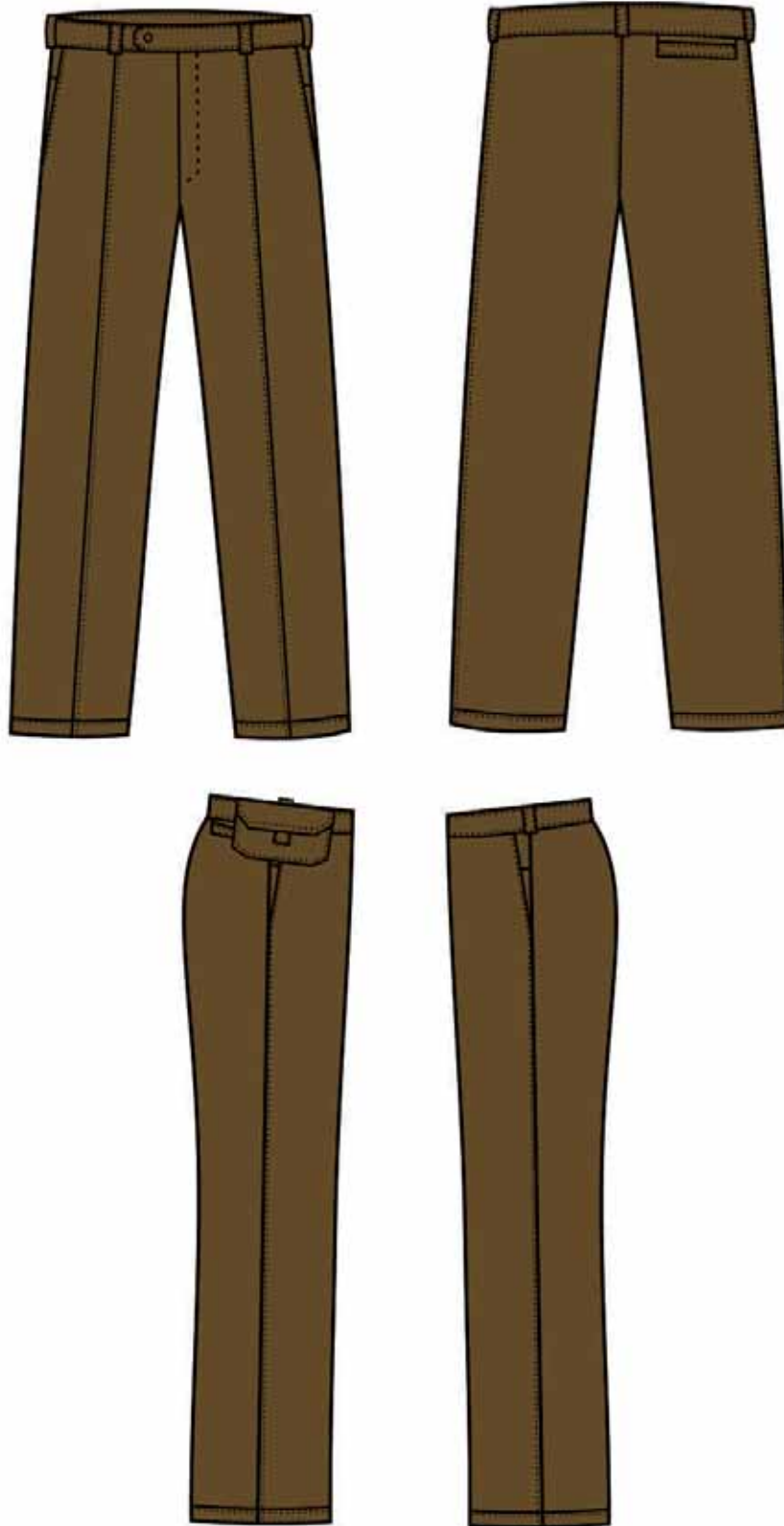
Additional design intervention has been introduced for the hem of the trousers, which gets torn off because of the constant frictions with footwear and the exposure to floor. The hem design has been tailored, to discard the torn off edges as well as bring out concealed fabric layer positioned within, as an additional fold inside, since it has been designed in such a way that, while discarding the torn off hems, the length of the trousers doesn't get reduced.

Detail of the Trouser

As a new design detail, an additional pocket panel, concealed well within the waist panel by the right side of the trousers is provided to accommodate mobile phones. The pocket doesn't disturb the look of the uniform; it can be brought out only when, one needs to carry the phone. The same can be used as a well spaced hidden pocket to carry any important items when not used for mobile. Considering the possible radiation issues that come with mobile phones, the placement of the pocket is positioned in such a way that, it does not hinder the wearer while walking, sitting and driving.

The side pockets of the trousers are now proved with a subtle slanted pocket entrance for the ease of hands to move in and out. The pockets have two layered fabrics to accommodate more items. The inner pocket has a flap within, for the purpose of holding things from falling while we sit or drive, such as key chains, coins, etc. The waist band of the trousers now has contrast piping line (dark indigo) along the circle adding a subtle aesthetic details matching to shirt. The trousers design and styling are similar for both men and women.

Trouser



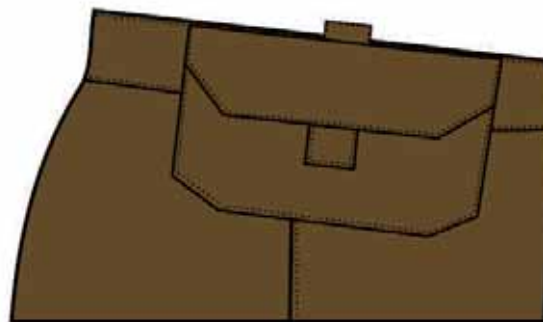
Detail of the Trouser

Another clear and required aesthetic intervention is to remove the typical, 3 big and curved belt loops that were borrowed from military uniform style. Instead, the new trousers are provided with 5 simple hooks that are well distributed around, to hold the belt effectively, as desired by many across the country.

For the fastenings, new design has, extended placket with two buttons for simple close and open access along with zipper fly as usual (inner side of the zipper placket has mini concealed pocket slot that can hide the tiny keys, used for hand cuffs)

Detail of the Trouser

As for the back pocket, a subtle design detailing has been suggested for carrying wallets. Considering the difficulties of carrying wallet while sitting and driving, the pocket has been slightly pushed upwards with simple flap with button lock. With new design, the wallet doesn't cause much inconvenience to the wearer, as well as not spoil its contents, such as ATM cards, ID cards, currency notes etc.



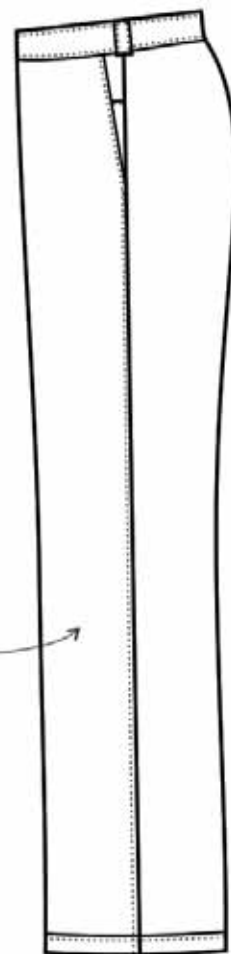
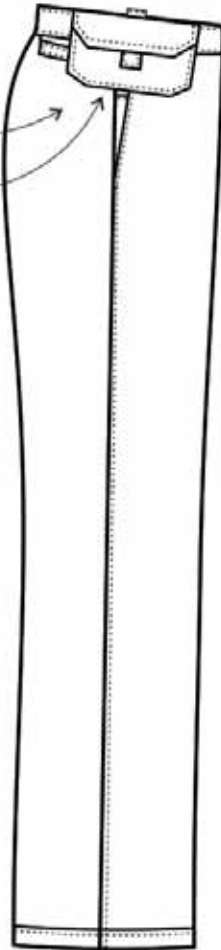
Detail of the Trouser

Special Pocket Pouch
for Mobile Phones
- it can be pulled out
only when required

Wide Spaced
Hidden pocket inside
to accommodate
mobile phone pouch

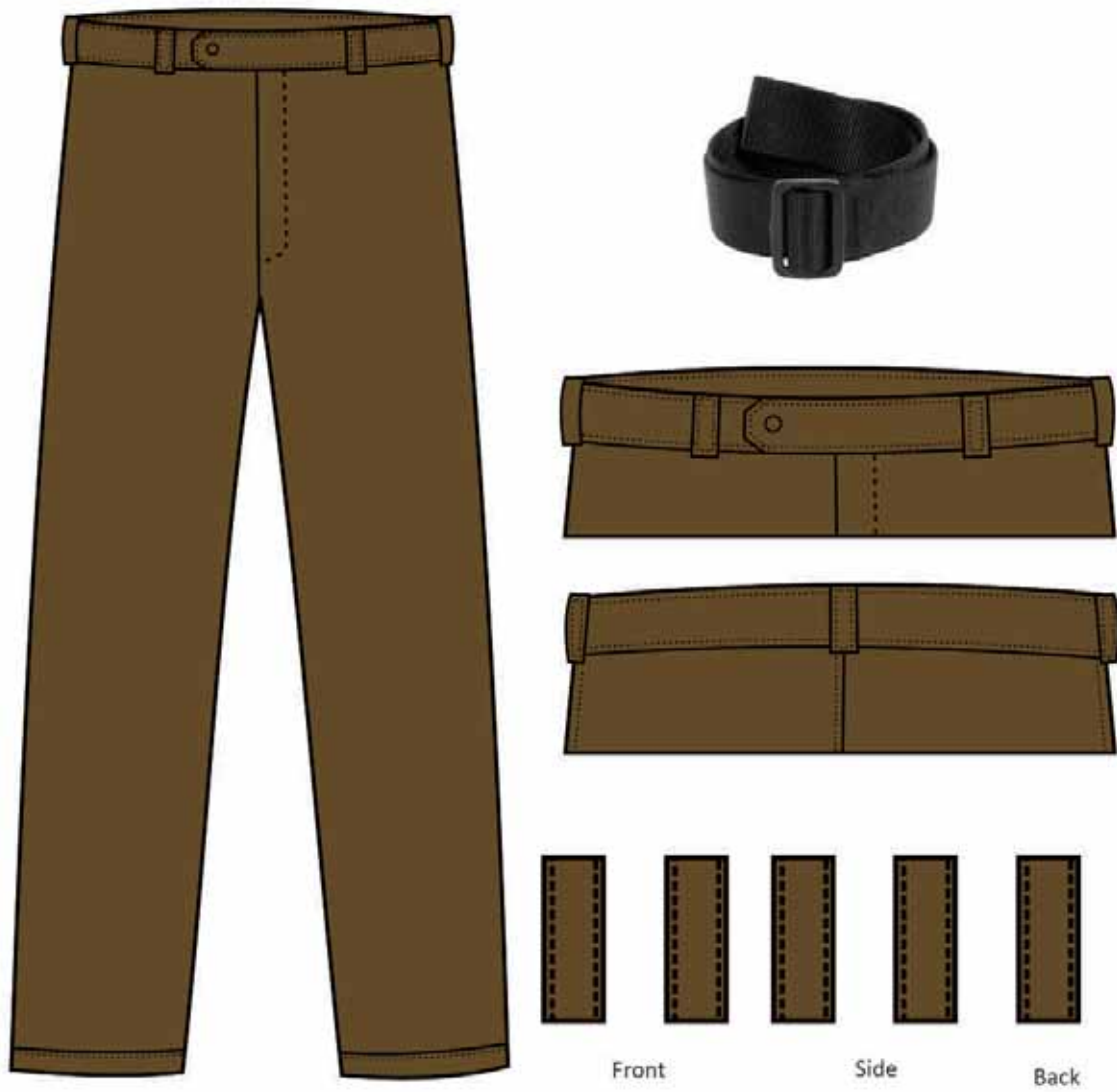
Reusable Hem
Detailing (worn-out hem
portions can be discarded
and replaced with new layer
provided inside for
longer use)

Comfortable
Straight Fit
(Styling)



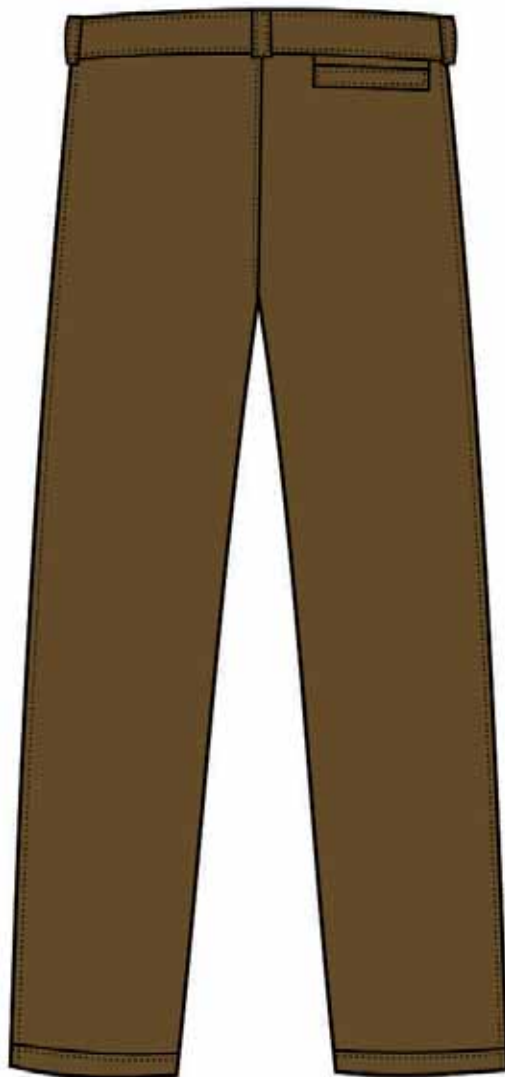
Detail of the Trouser

Belt Loops



Detail of the Trouser

Back Pocket



Pocket Entrance positioned slightly above usual placement in ordered to avoid causing inconveniences while using wallet

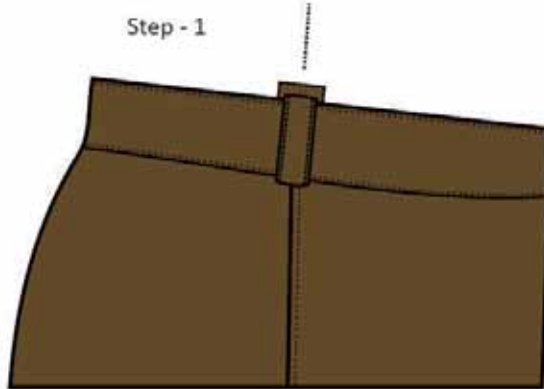


Detail of the Trouser

Mobile Pocket

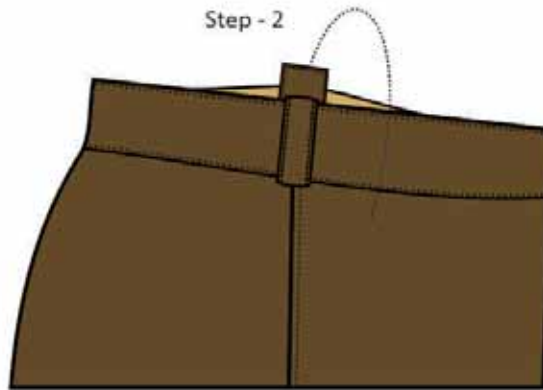


Step - 1



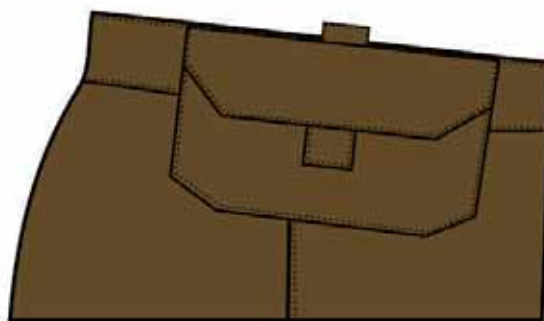
Mobile Pocket Loop (to pull out when needed)

Step - 2



Concealed Pocket
(Containing Mobile pocket pouch)

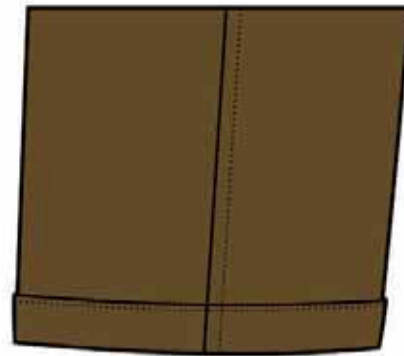
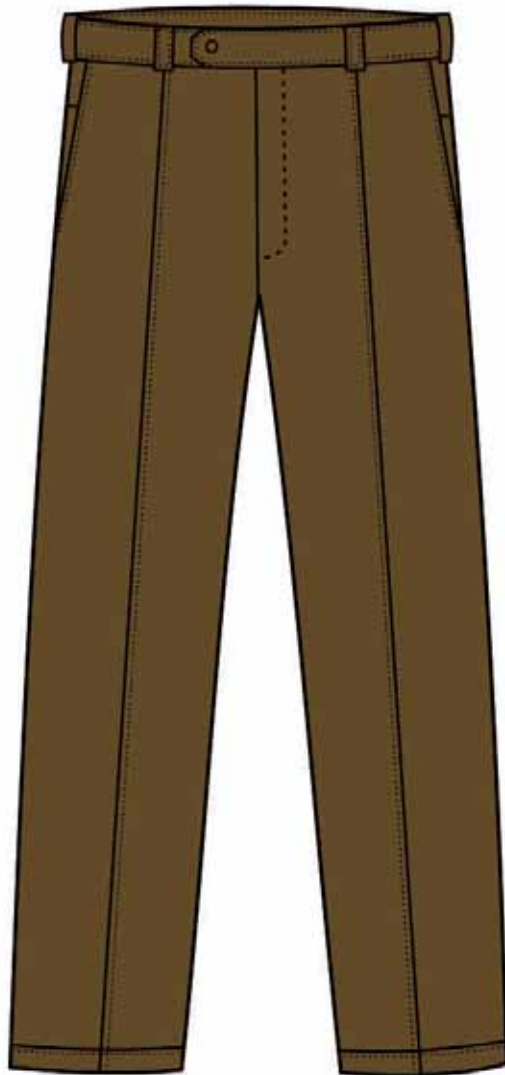
Step - 3



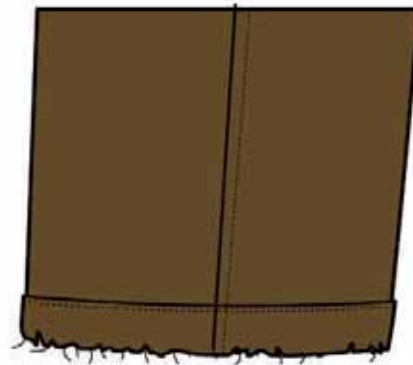
Revealed Mobile Pouch with Velcro Faster
(Rests on belt)

Detail of the Trouser

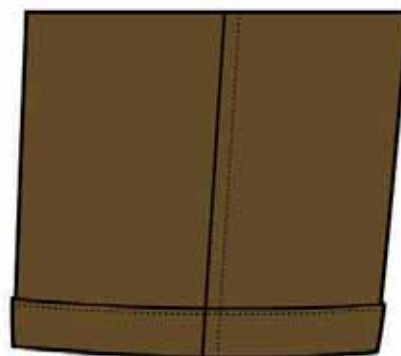
Leg Openings



Reusable Hem detailing



Worn out edges due to constant friction,
wear & tear
(It can be cut away and discarded)

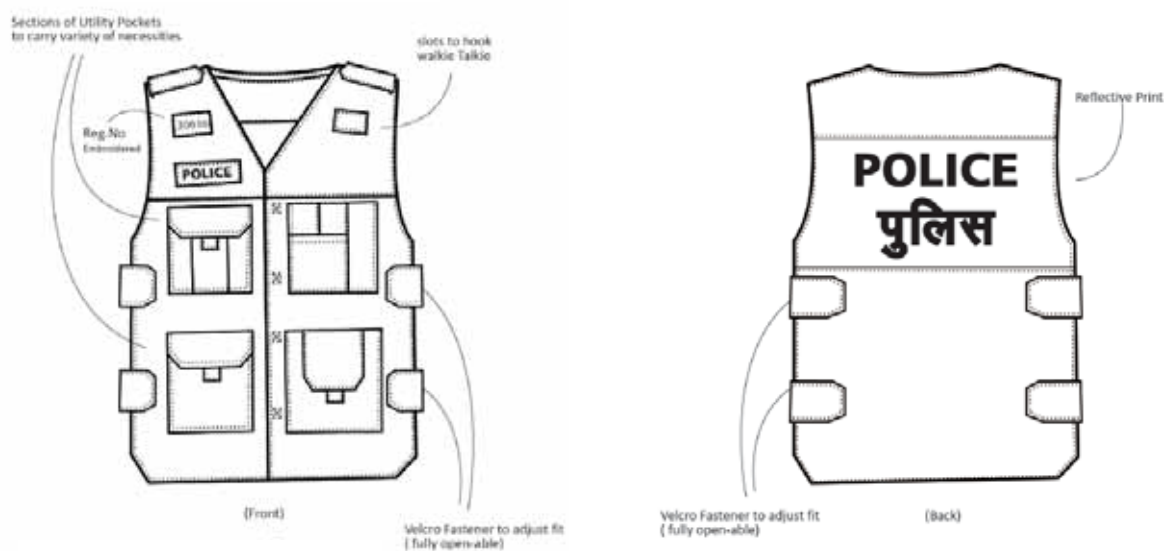


New panel revealed from inner side
(simple stitching process to retain same fabric feel and look)

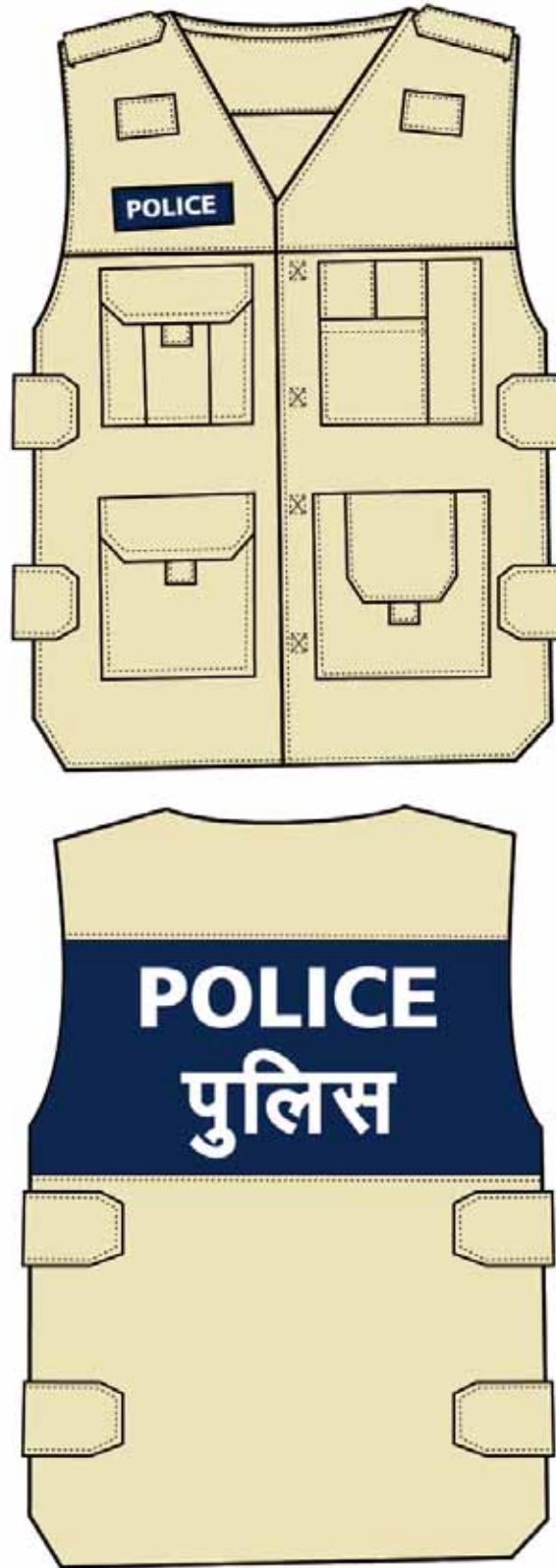
Detail of the Duty Jacket

The purpose behind the design of duty jacket is to introduce a functional yet simpler additional clothing gear for police both men/women, by providing a single clothing item that can address many basic needs listed below:

- Any person in the police organization, irrespective of ranks, departments and geographical differences, can put on top of their regular working uniform or civilian clothing easily.
- Jacket styling is designed in such a way that, any age and size or body type persona can easily put on top of their uniform.
- The fastening of the clothing is made in such a way that, it can be worn and removed immediately at times of urgent need, also folded and carried easily.
- As the title aptly suggests, the design of the jacket addresses the functional requirements that a police personnel may require to perform varieties of activities in his/her duties, such as, carrying walkie - talkie, whistle, id cards or badges, hand gloves, torch light, note pads, pens, detachable insignia slots, keys, spectacles, mobile phones, small/medium patrolling devices, handkerchief or any other personal items.
- For the first time, a clear, bold and balanced typographic print of POLICE written in English as well as regional language, on the back side of the duty jacket will be used in police force. The printed details will also mention the name of the organizations, such as BSF, CRPF, CISF, ITBP, SSB, BPRD, etc. This will ensure that civilians will be able to identify and approach them easily.
- For the better visibility, the back print of POLICE (English/ regional language) is printed in bold white font over dark indigo background colour. The same can also be printed in reflective pigment for the visibility in the night purpose.



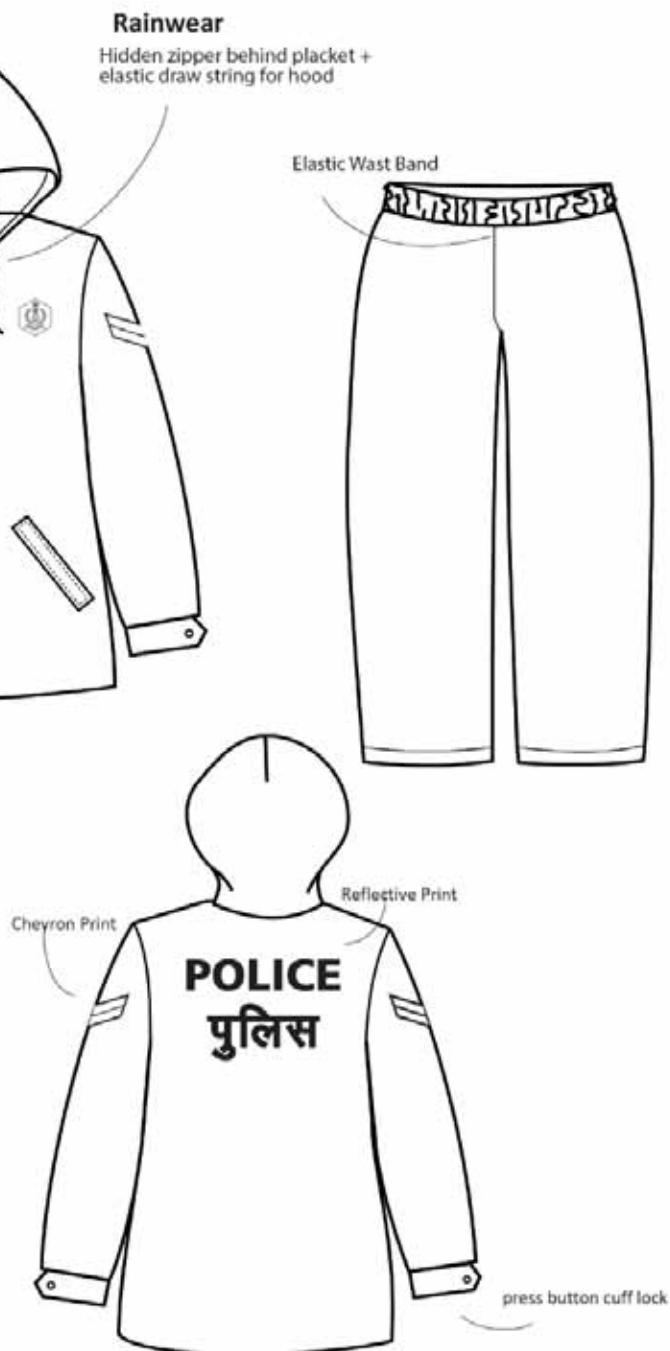
Duty Jacket



Design of the Rainwater

The suggested rainwater design comes with simple and clean hooded jacket top and elasticated leggings. The colour of the rainwater clothing is soft khaki, same as the selected shirt colour. Front of the rainwater jacket to have two slanted pockets.

The back of the jacket will have a print of POLICE (English on top and regional language below) printed in bold dark indigo colour below the shoulder line. The selected font is to be standardized and followed across the country.



Rainwear



Design of the Shoes

The Design of the new shoes has been focused on addressing many functional utilities including better protection and enhanced mobility.

The material of the new proposed shoes is natural rubber and PU sole to provide comfort in extreme working conditions. Incorporating the features and benefits of the natural range, the dual density sole construction includes polyurethane for cushioning throughout the mid-sole and rubber nitrite for the heat resistance up to 300* C.

The natural rubber sole provides the benefits of Bata's tunnel system and multi direction slip resistance. Oil resistance is recommended in application where contact temperature exceed 130*C.

The key features are, Heat Resistance, Oil resistance, Anti-Slip, Anti-Static, Electro static dissipative, electrical insulation, steel toecap, and protection against sharp objects.



Shoes



PU/RUBBER:

The natural rubber and PU sole provides comfort in extreme working conditions. Incorporating the features and benefits of the natural range, the dual density sole construction includes polyurethane for cushioning throughout the midsole and rubber nitrile for heat resistance to 300°C on the outsole. The natural rubber sole provides the benefits of Bata's Tunnel System and multi direction slip resistance. Oil resistant area and is recommended in application where contact temperatures exceed 130°C.

Features



Oil Resistance



Heat Resistance



Steel Toecap



Anti Slip



Electrical Insulating



Anti Static



Sharp Objects



Electro static Dissipative

Women Shoes

Description

A rugged shoe design with canvas upper which provides comfort & durability with excellent flexing properties. It is the Pouring collection which has extra durability, is resistant to oil, acid and heat.

Maintenance

To keep footwear in usable conditions it is recommended to maintain it always clean and polished. If wet, shoes should be dried at room temperature. Never heat at stove.

Description

Color : Black

Construction : PU-Pouring

Upper : Buff Printed Leather

Lining : Cambrelle

Insole : Strobel Cloth

Midsole : Polyurethane



Features



Oil Resistance



Heat Resistance



Steel Toecap



Anti Slip



Electrical Insulating



Anti Static



120°C Temperature



Electro static Dissipative

Design of Insignia

The Insignias and symbols for the new uniform are designed to be simpler, clear and effective. The main “Indian police” sign, as well as ‘formation signs’ are to be placed within the ‘hexagon’ form or the honey bee structure, which is also the inspiration behind the design of the new uniform. It is proposed that all the States will maintain one style/language across the country. The insignias are made of ‘crisp woven labels’ sewn over the sleeve reflecting every sign’s identity in very clear and effective graphics.

The chevron forms are simplified and positioned in harmony with the signs above. The similar format to be followed to maintain the uniformity across the country (Details of the epaulettes, name plate and registered number plates are mentioned in the shirt details already)



Chevron Label (both sleeves)



Formation Sign of State of CAPFS Label
(left sleeve)

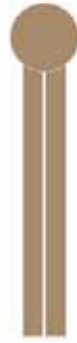


Indian Police Label
(Right sleeve)



BPRD

Embroidered Stars
on Fabric Epaulette
(Shoulders)



30616



Embroidered Name Place
(Velcro Fastening)

Design of Head Gear

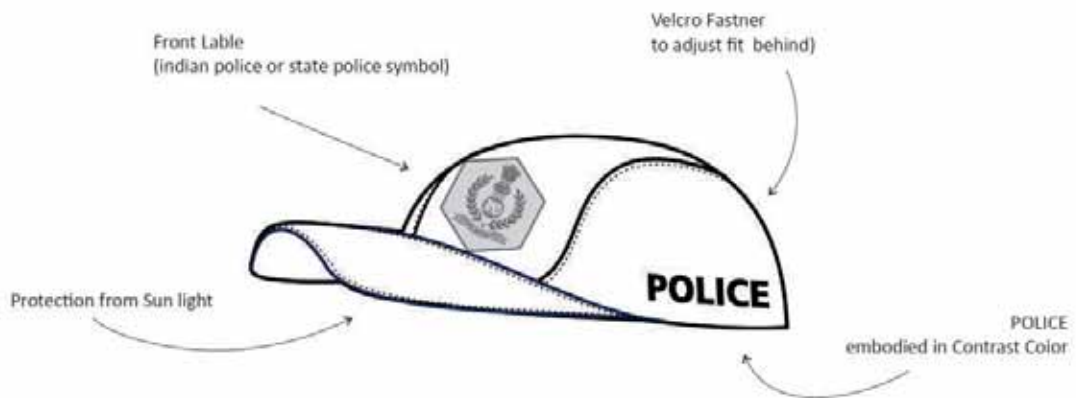
The Design of the new headgear has been focused on addressing many functional utilities including better protection of head and the easy to carry with proper detailing on it.

The material of the new proposed headgear is the same cotton fabric used for constructing the garment.



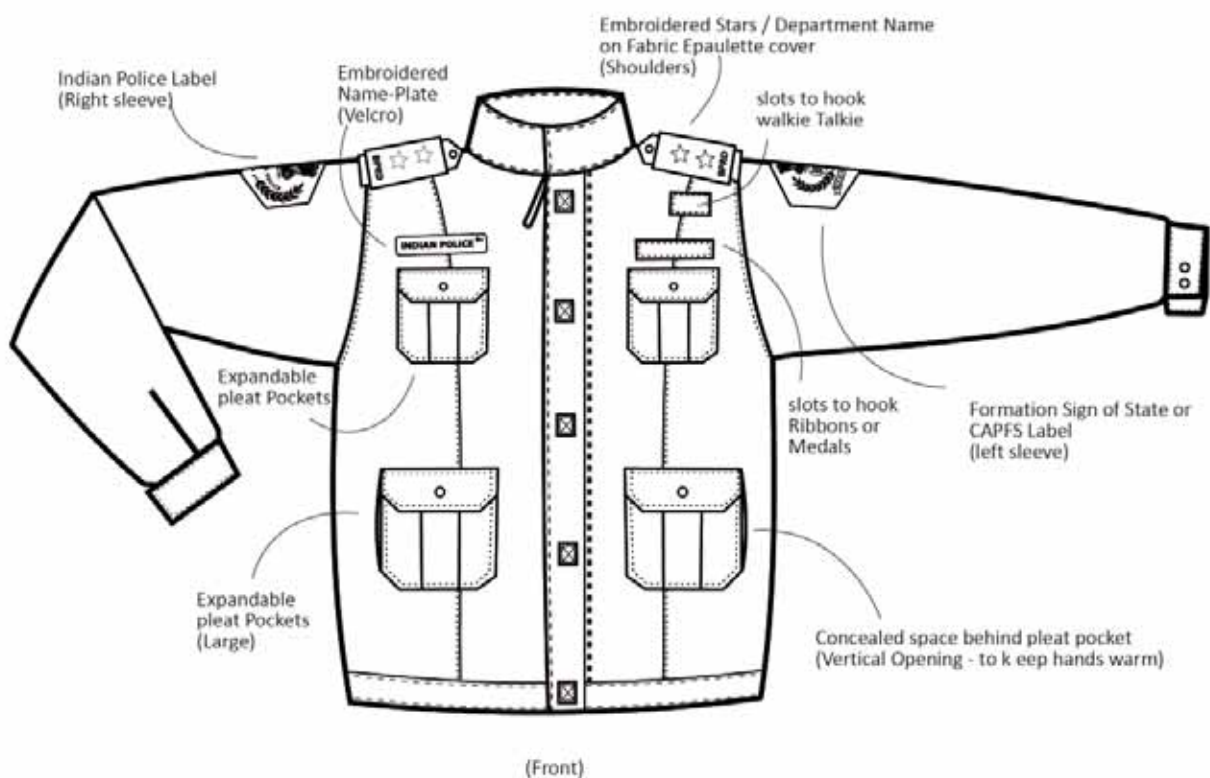
POLICE

Head Gear

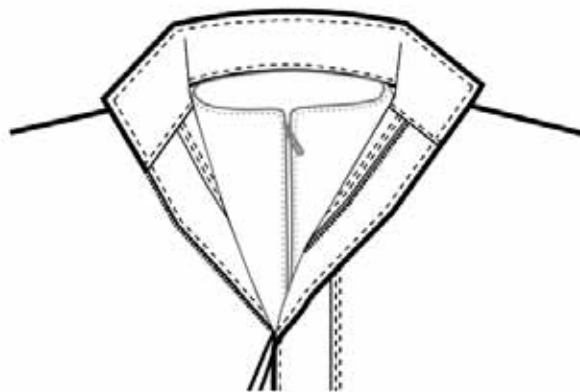
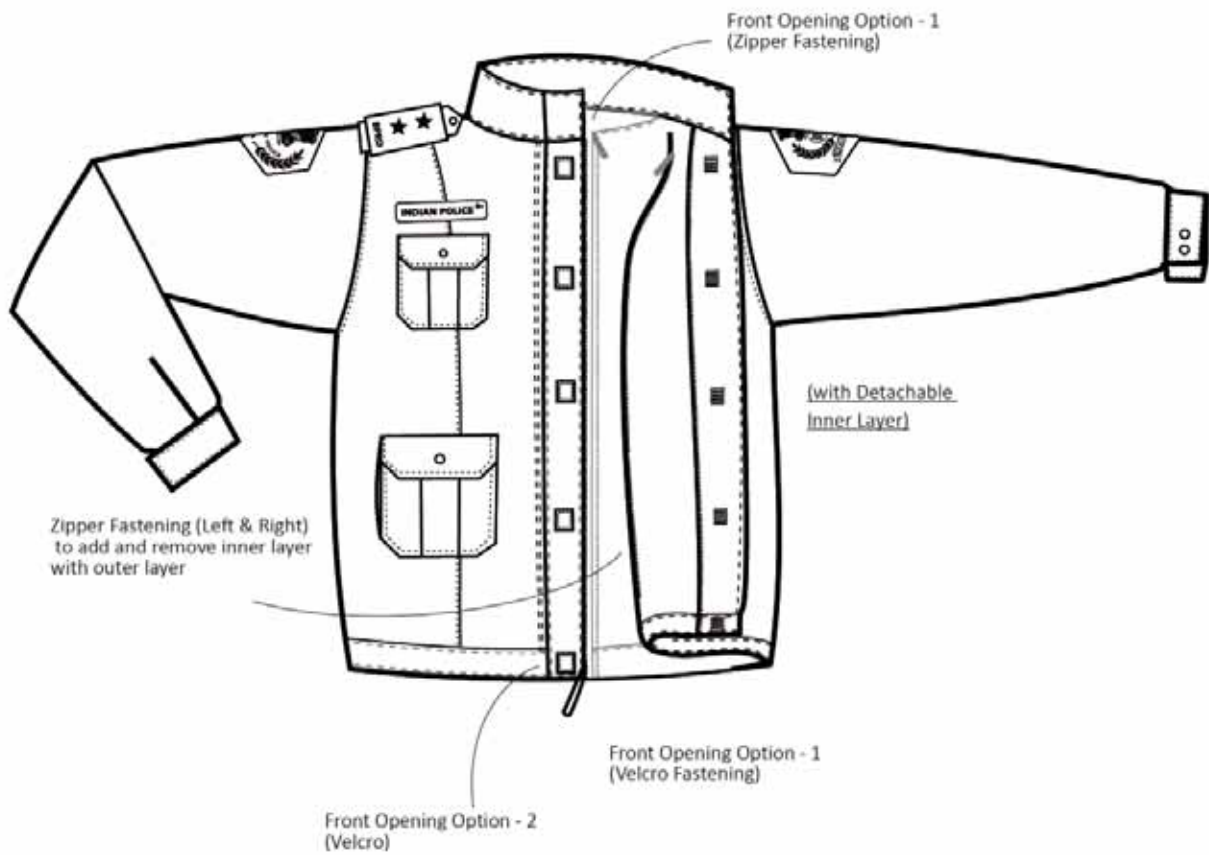


Design of Winter Jacket

Winter Jacket

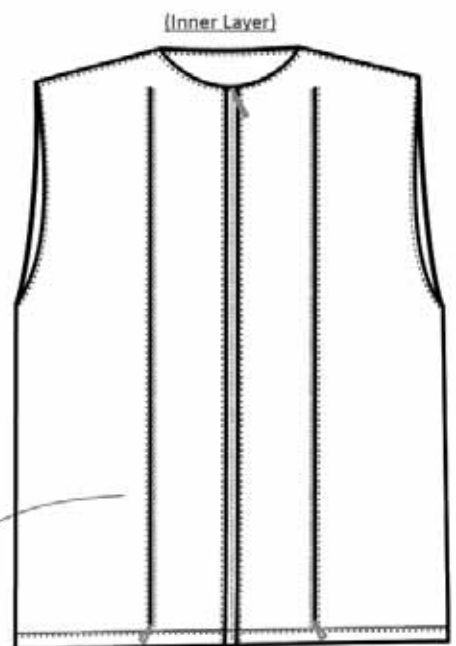


Winter Jacket



Outer & Inner layers combined
(Front Appearance)

Zipper Fastening
(Left & Right) to add and
remove with outer layer



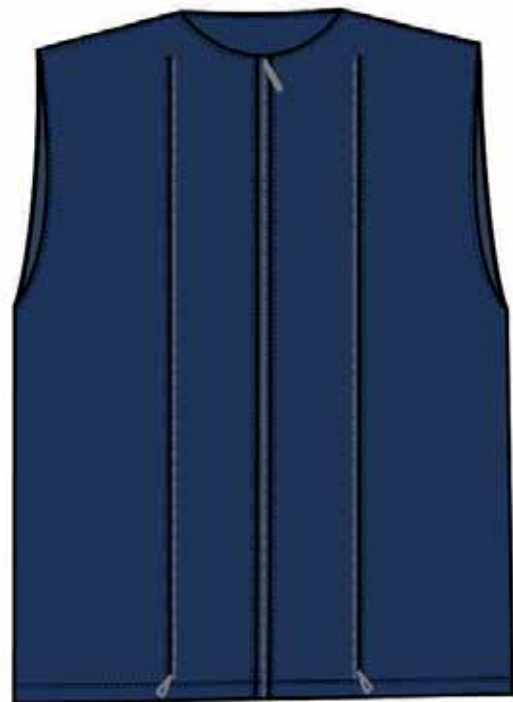
Front Opening
Zipper

Winter Jacket



Outer & Inner layers combined
(Front Appearance)

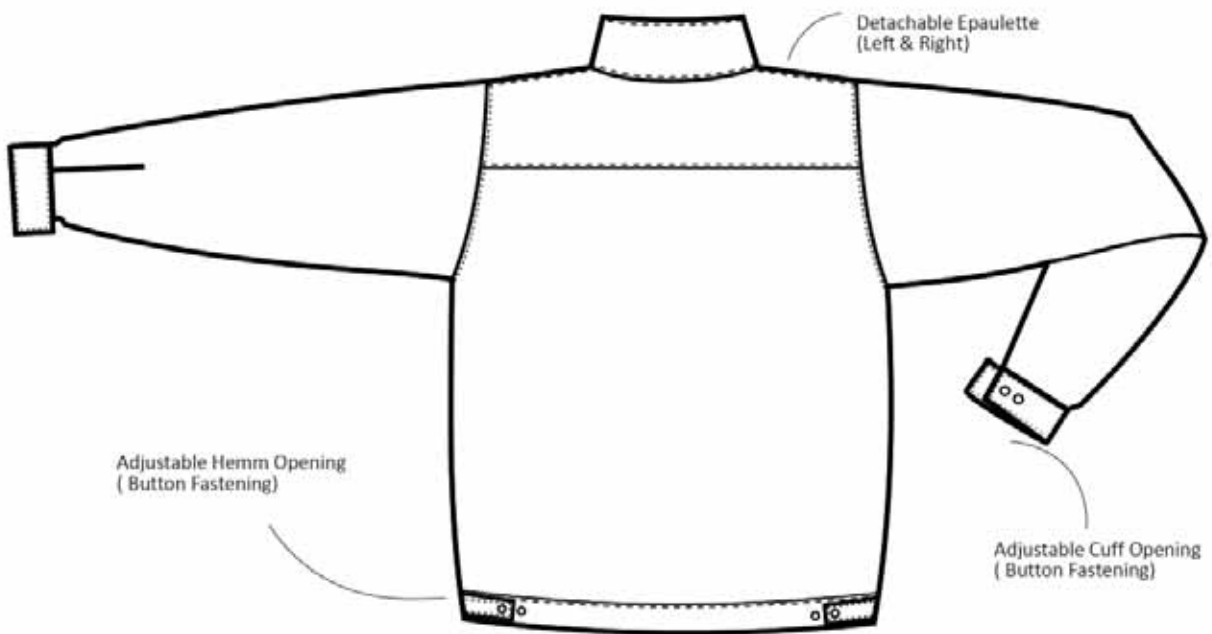
(Inner Layer)



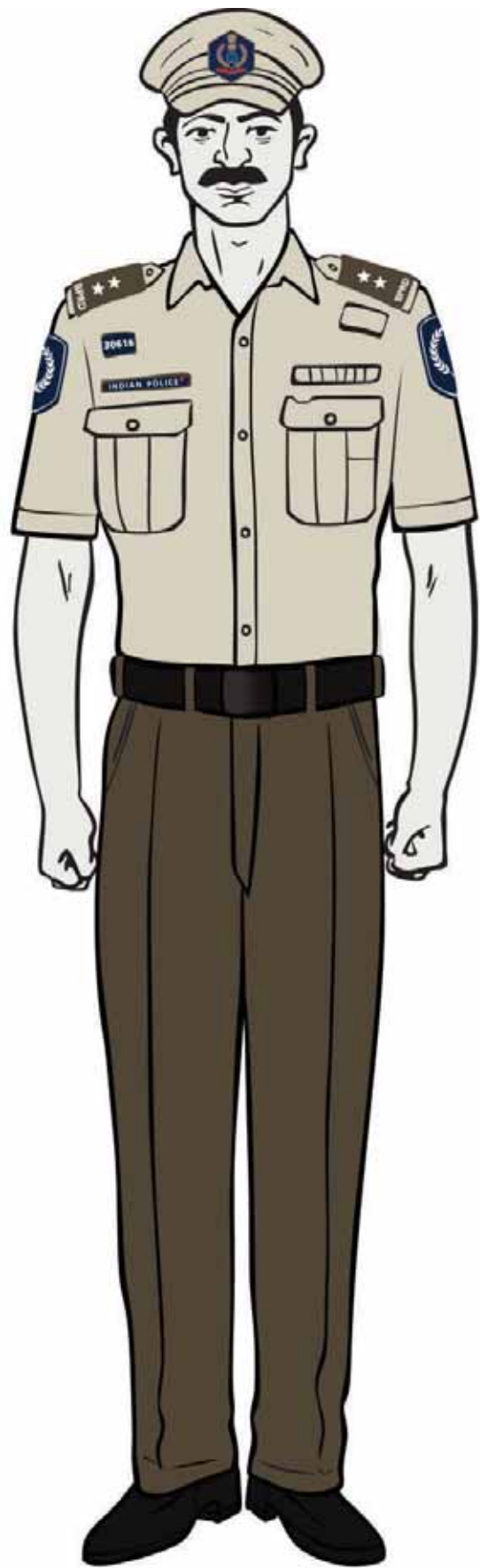
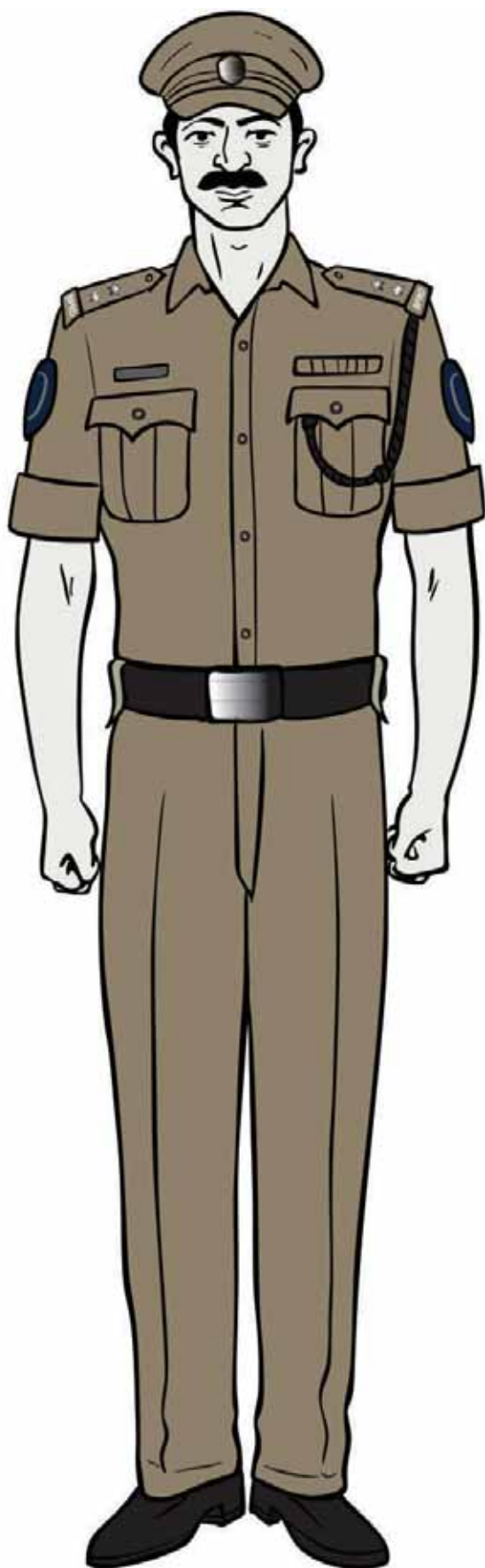
Winter Jacket

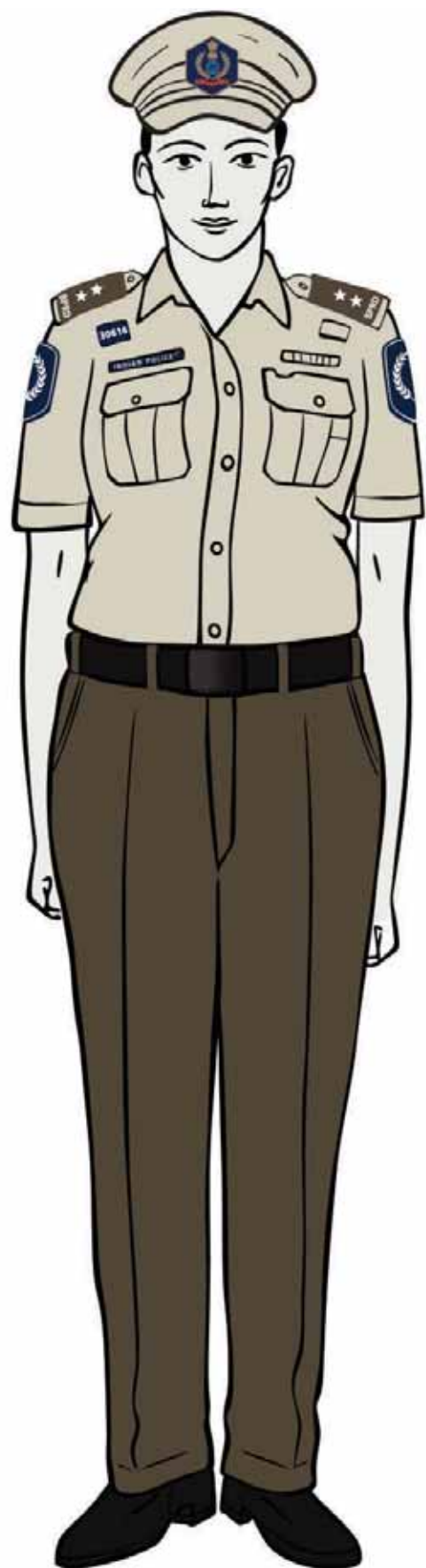
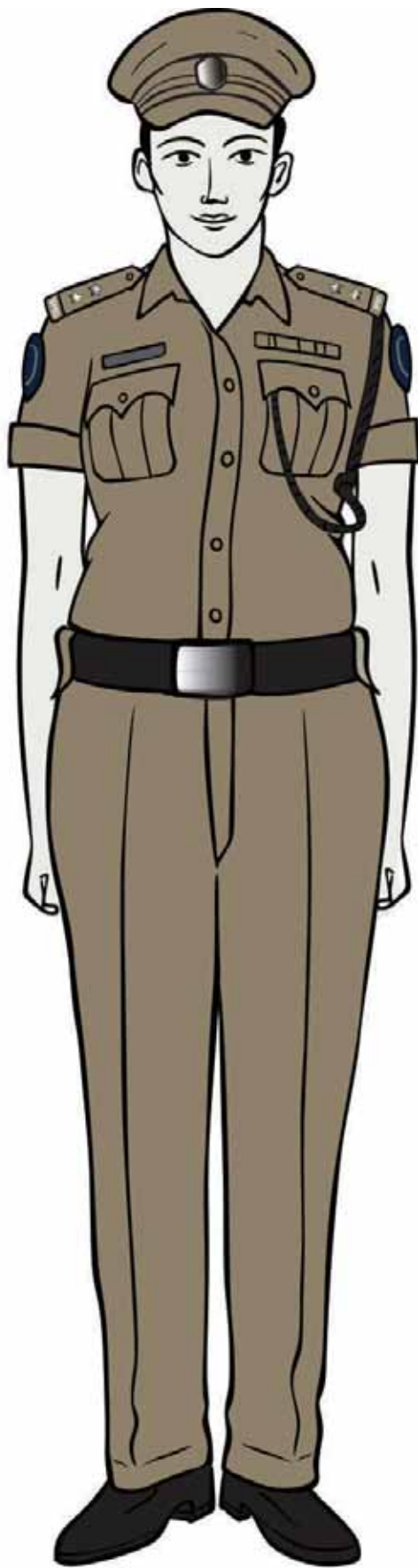


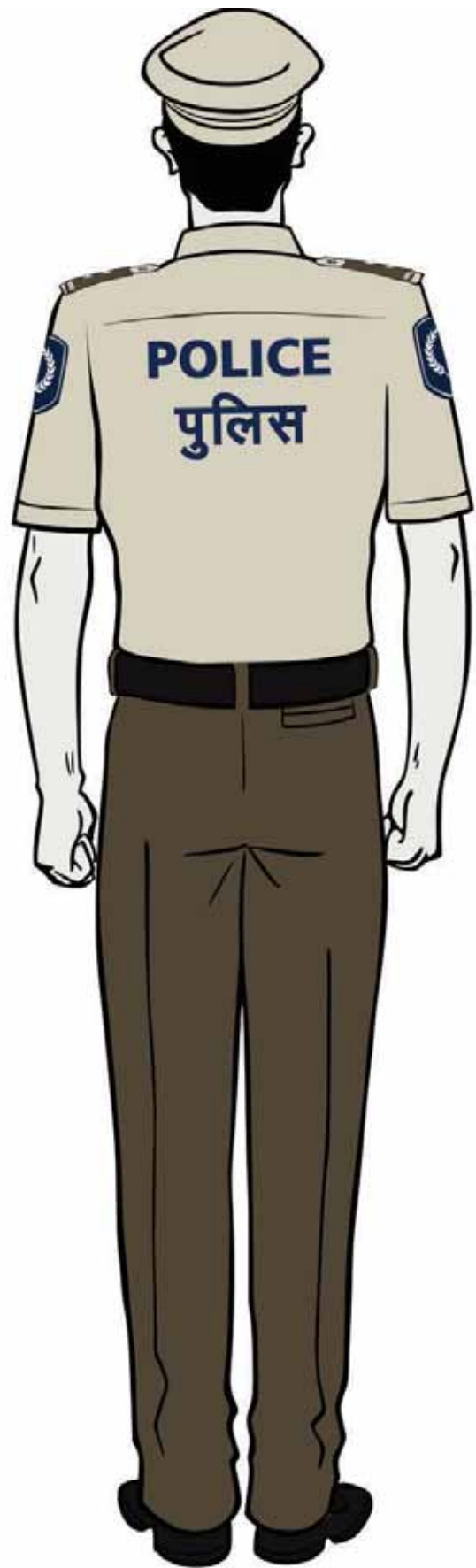
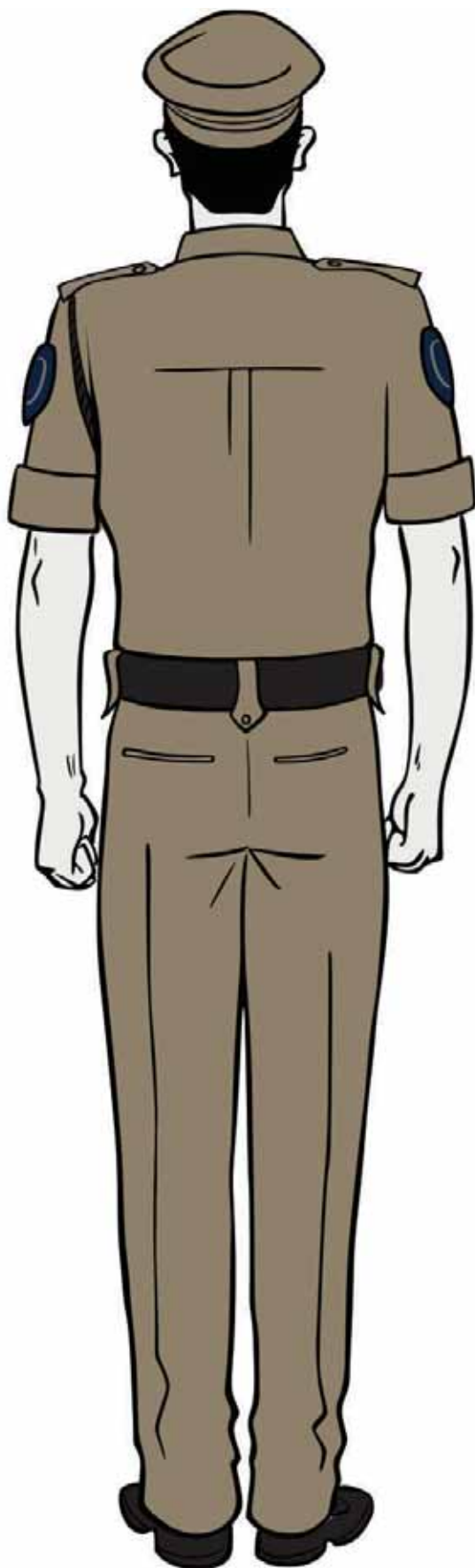
(Back)

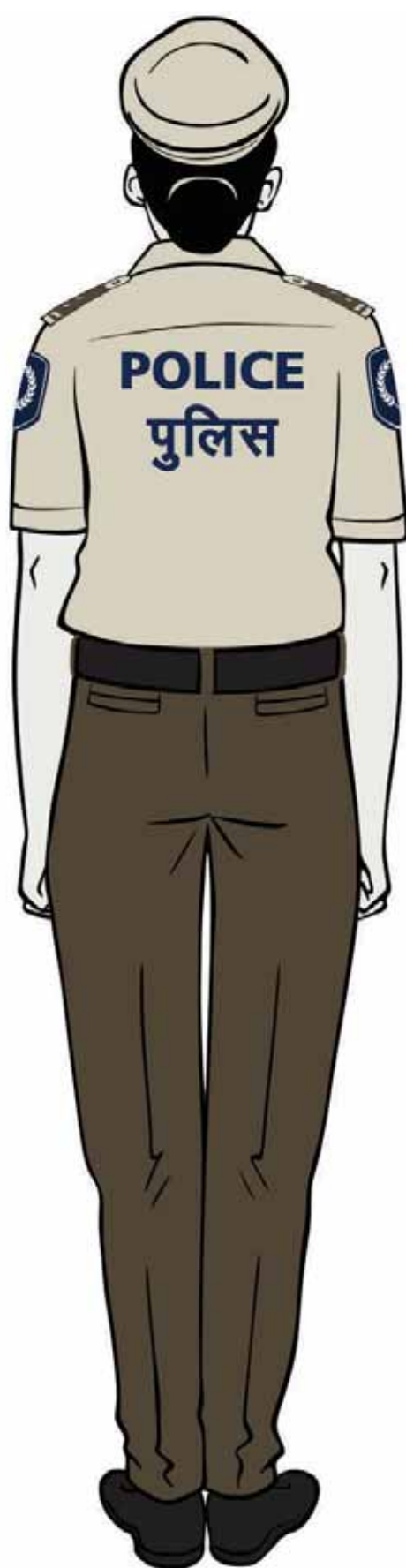
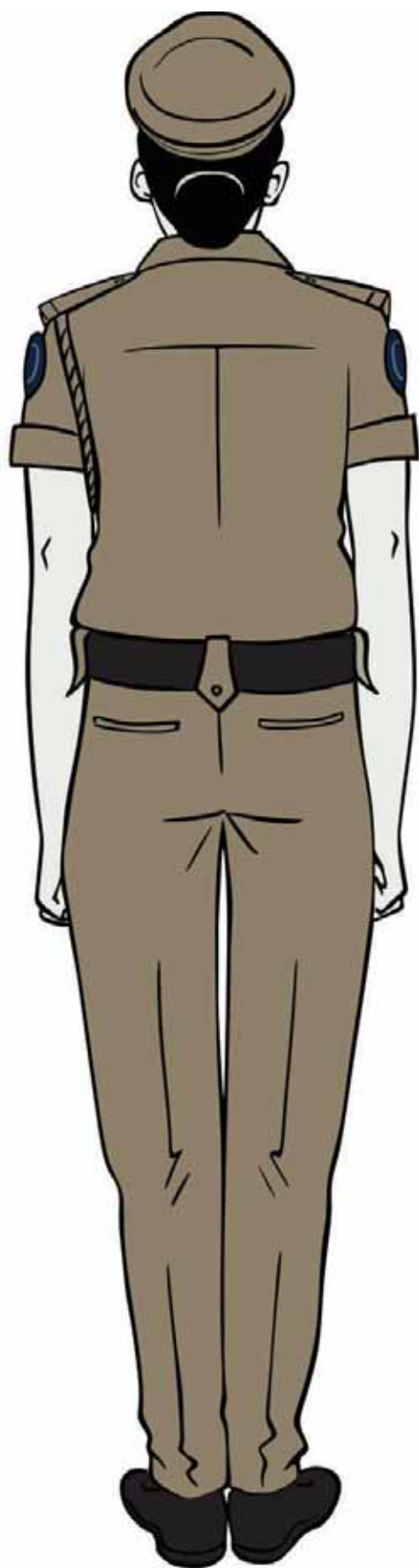


(Back)



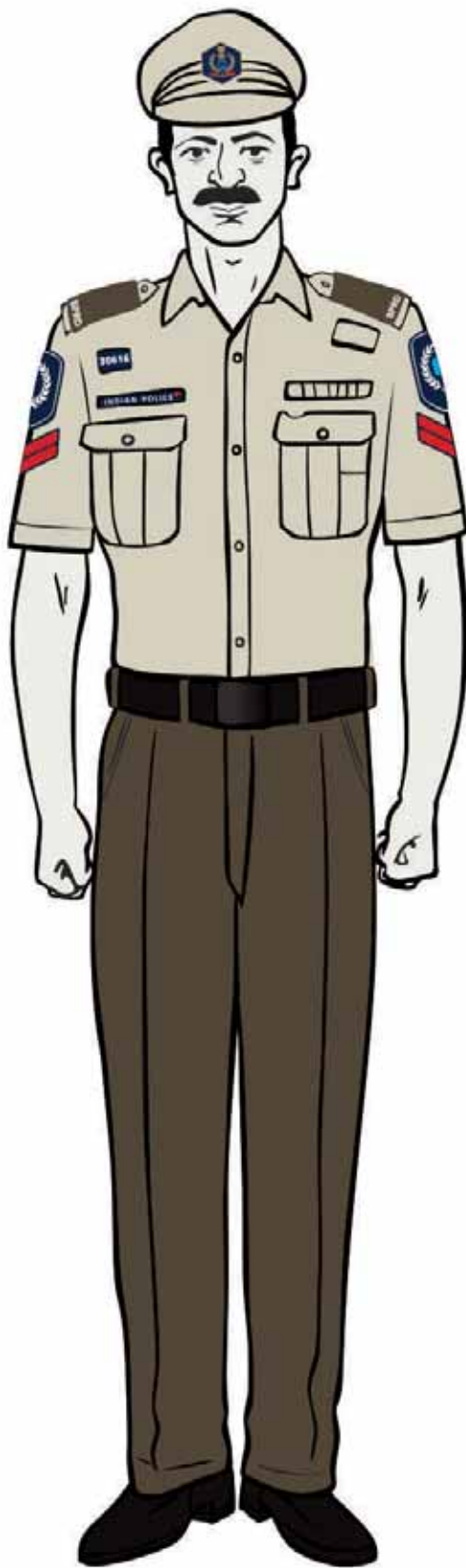




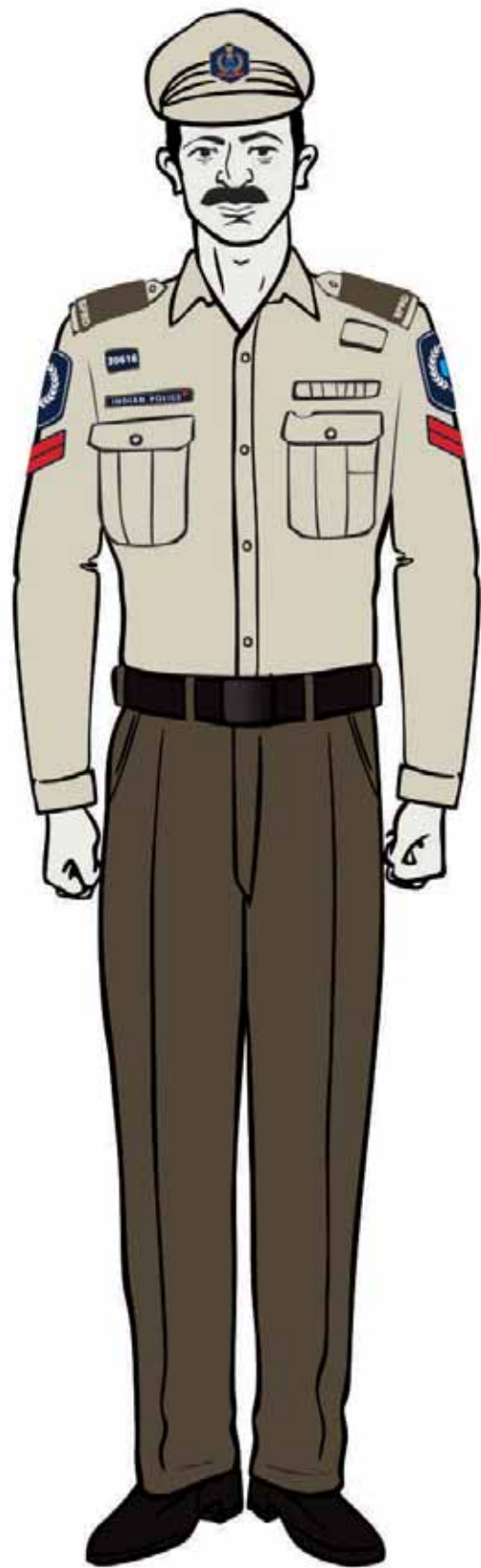




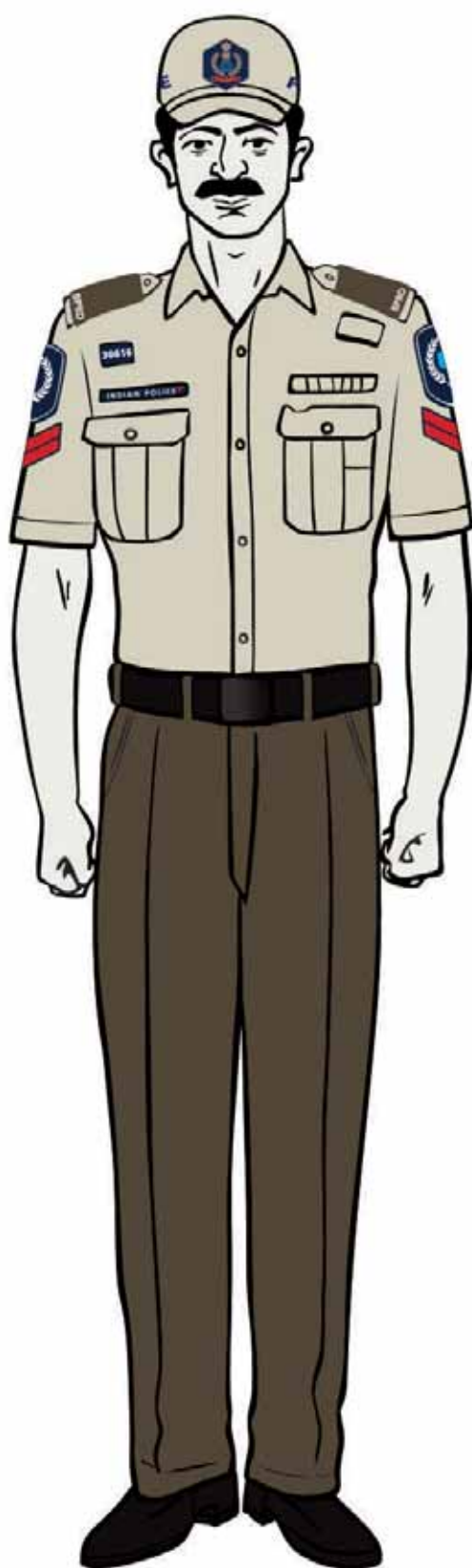




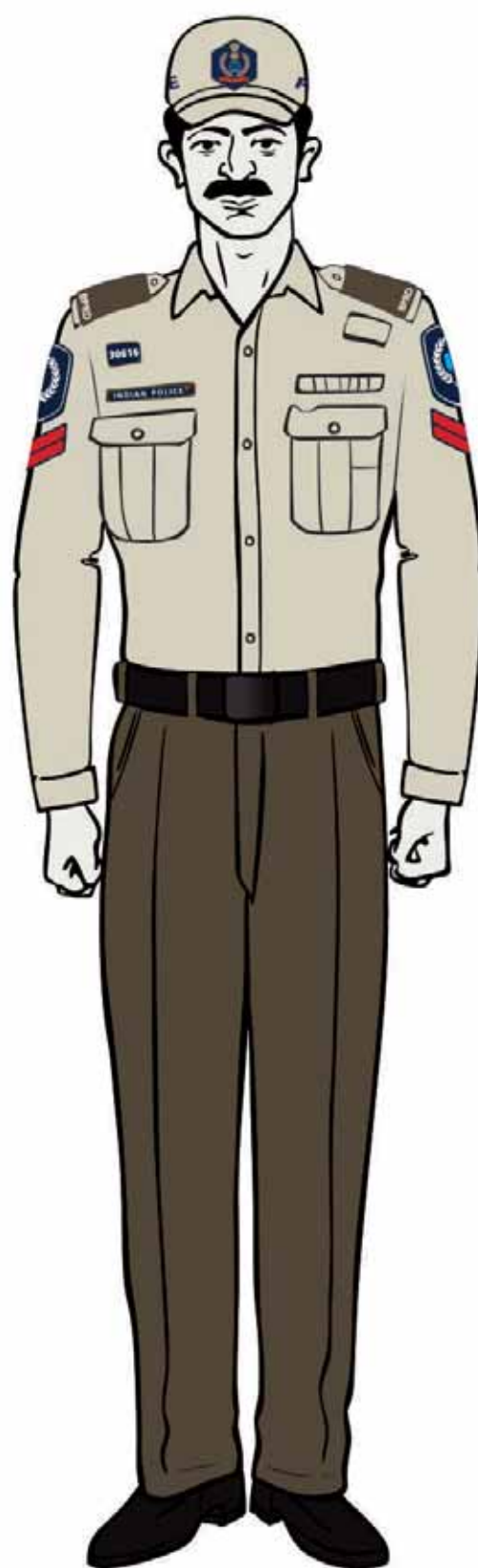
Work Uniform Half Sleeve
Peak Cap - Front View



Work Uniform Full Sleeve
Peak Cap - Front View



Work Uniform Half Sleeve
Commando Cap - Front View



Work Uniform Full Sleeve
Commando Cap - Front View



Work Uniform Half Sleeve
Peak Cap - Side View



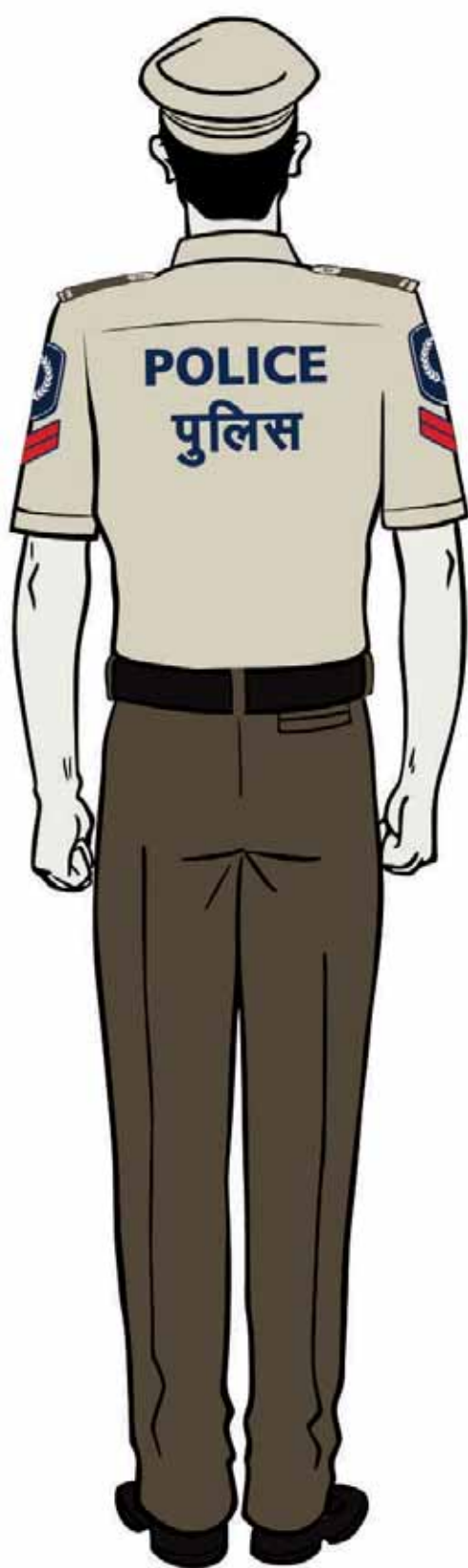
Work Uniform Full Sleeve
Peak Cap - Side View



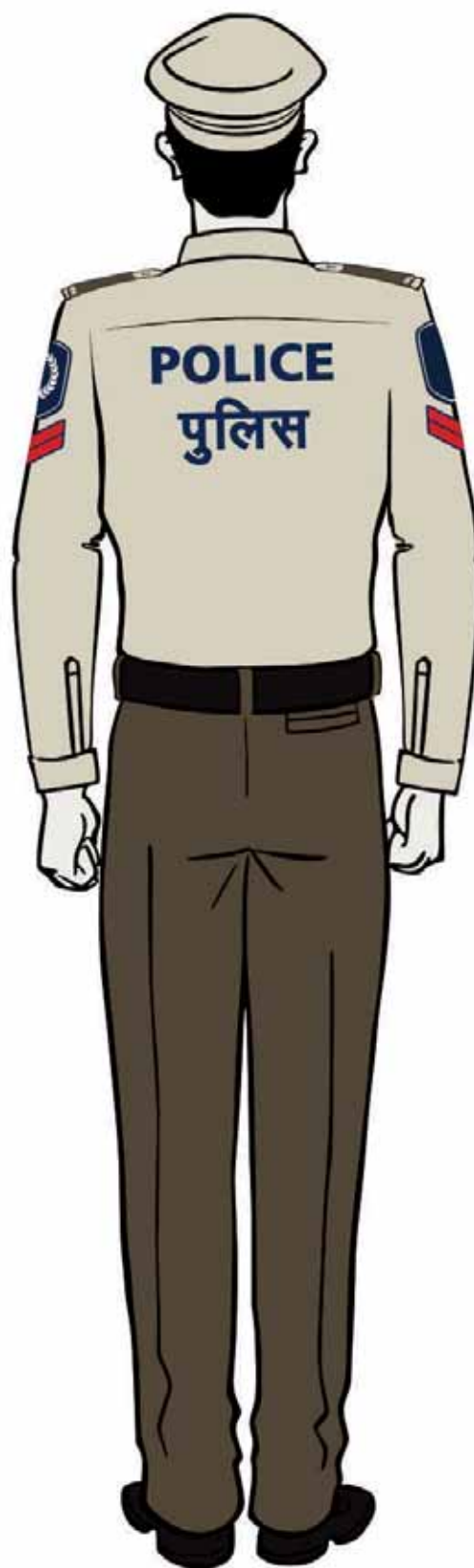
Work Uniform Half Sleeve
Commando Cap - Side View



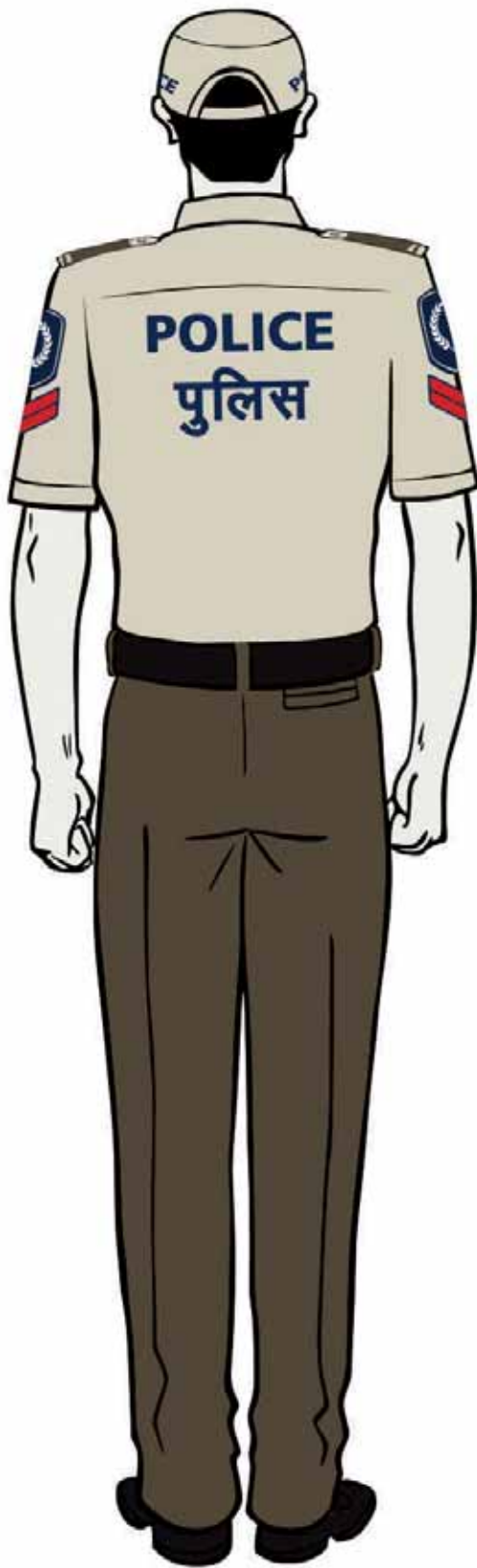
Work Uniform Full Sleeve
Commando Cap - Side View



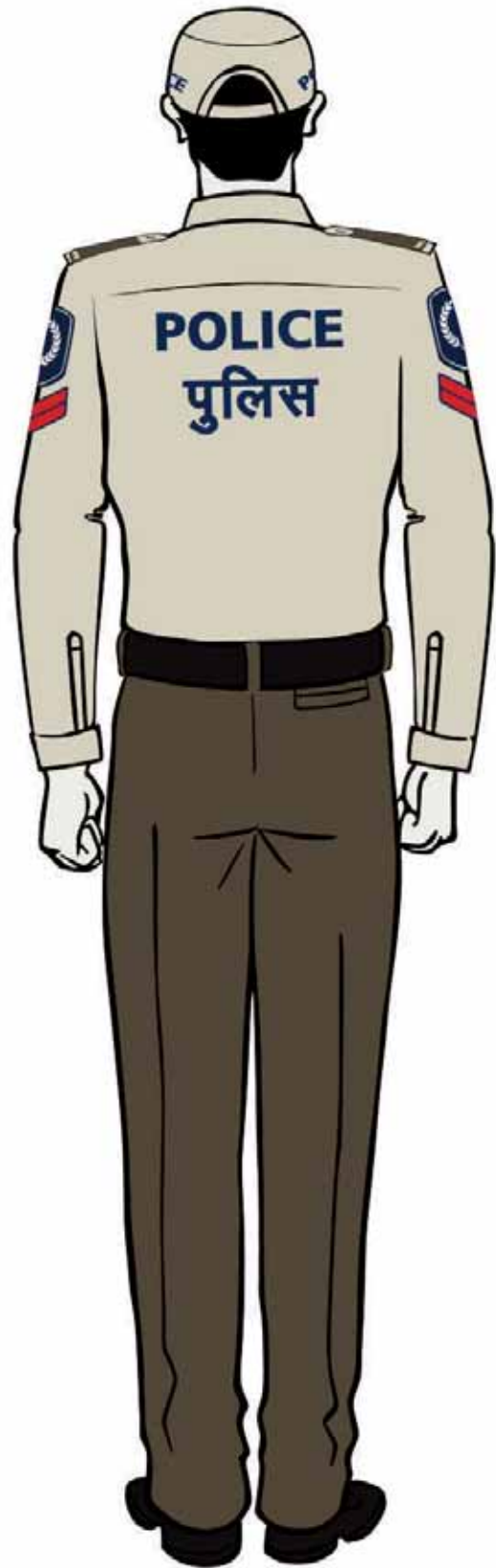
Work Uniform Half Sleeve
Peak Cap - Back View



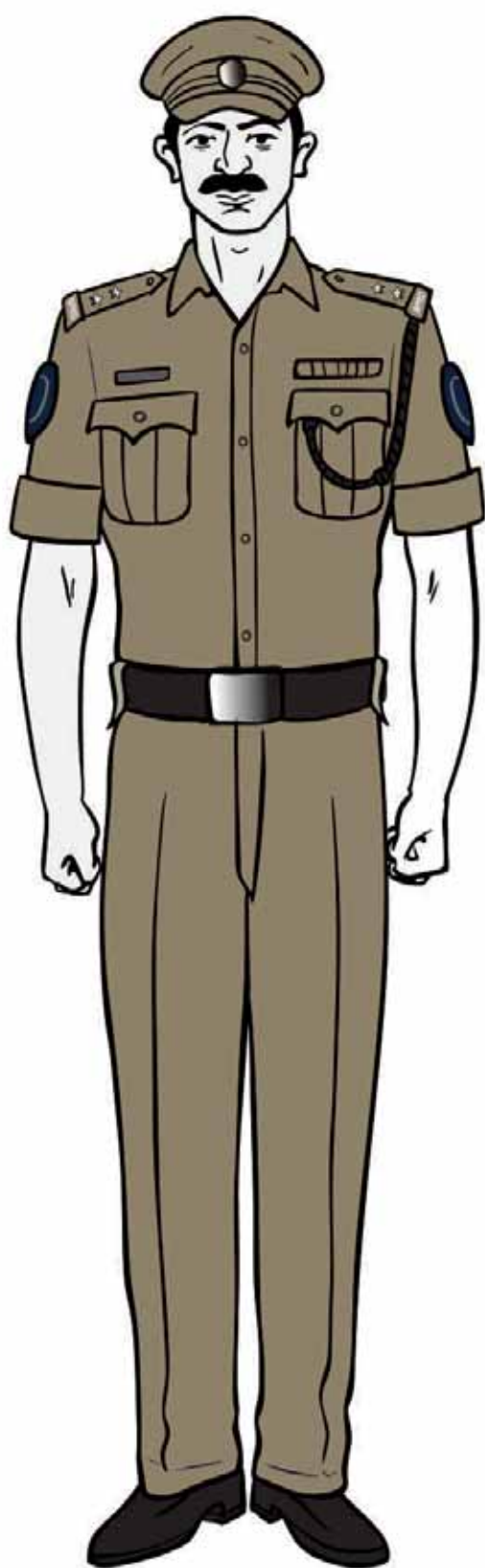
Work Uniform Full Sleeve
Peak Cap - Back View



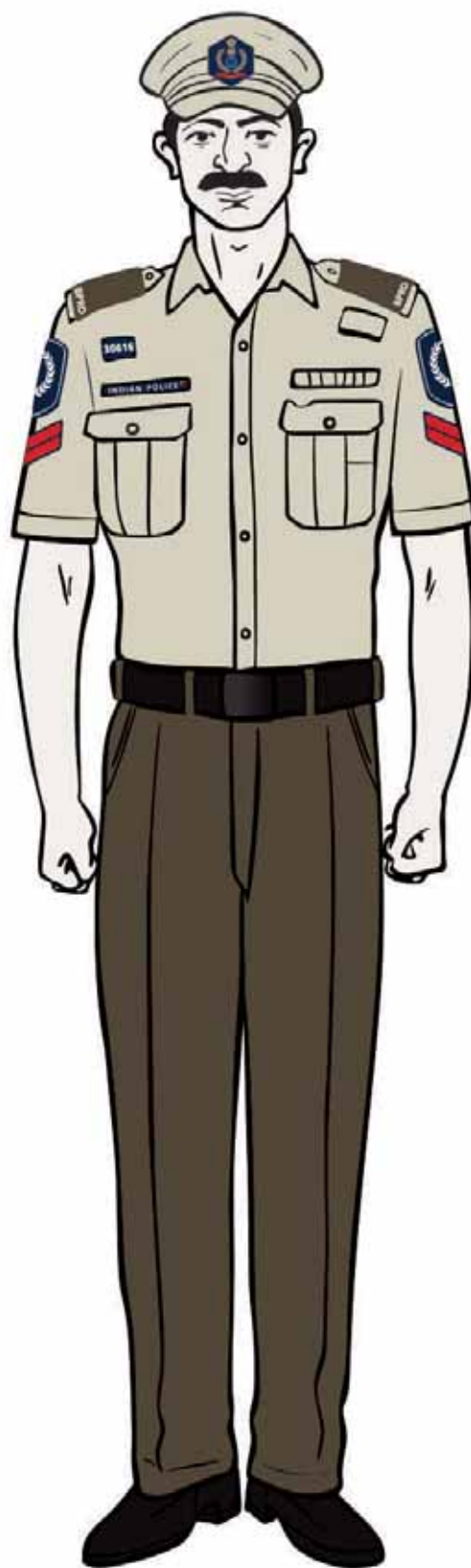
Work Uniform Half Sleeve
Commando Cap - Back View



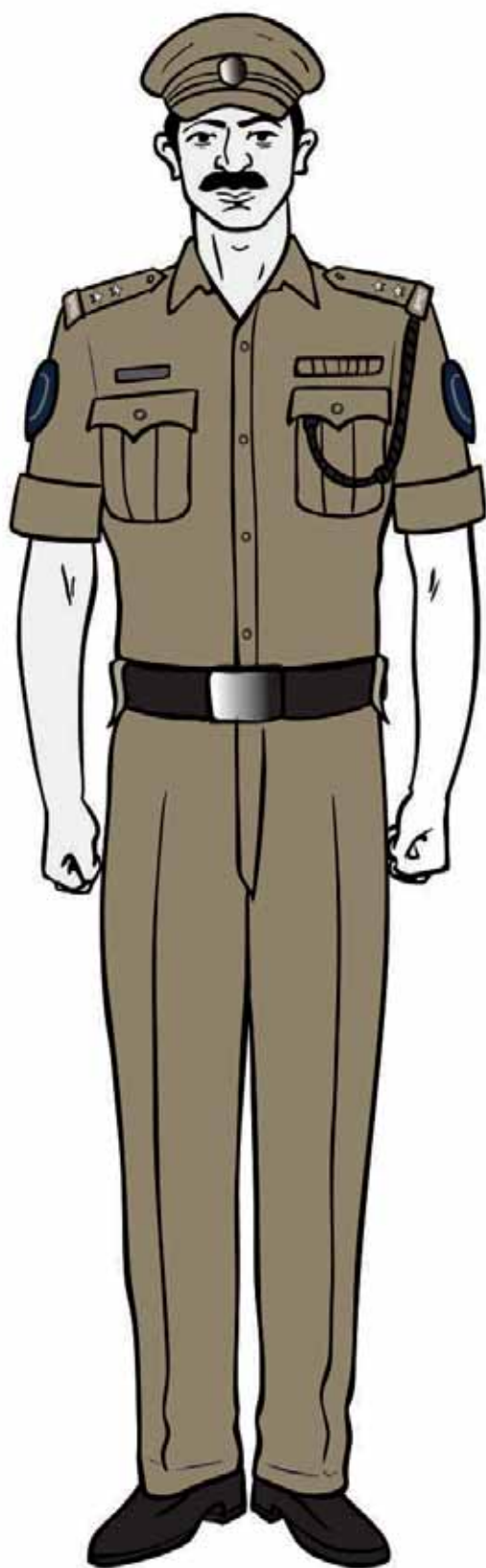
Work Uniform Full Sleeve
Commando Cap - Back View



Work Uniform
Present Color



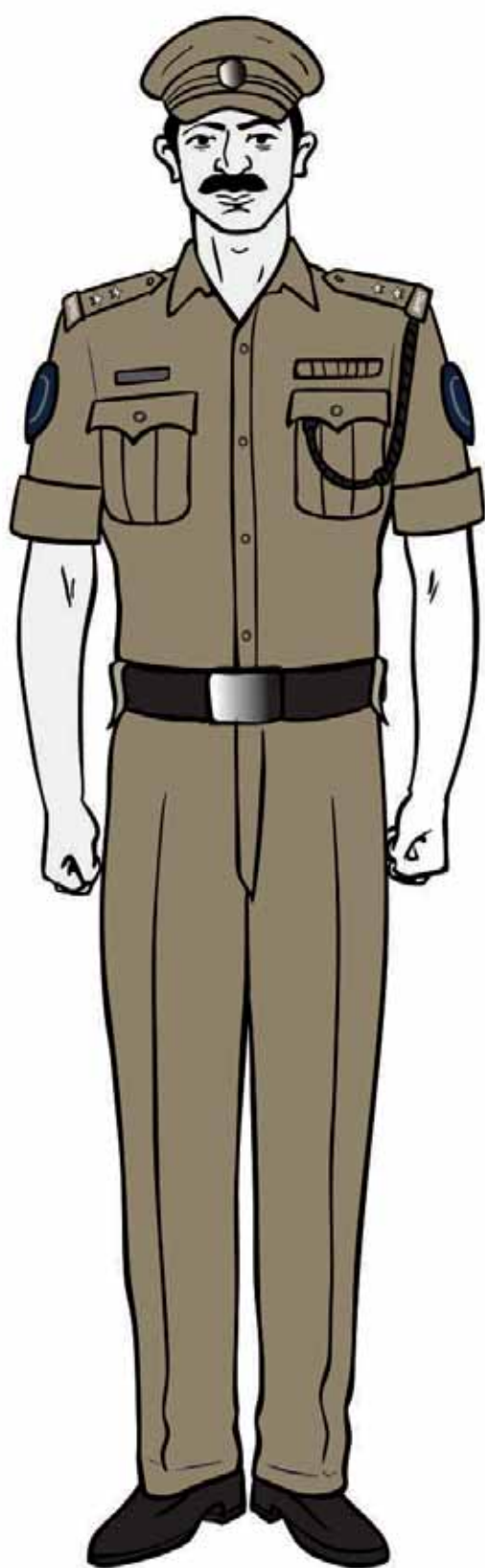
Work Uniform
Color Options



Work Uniform
Present Color



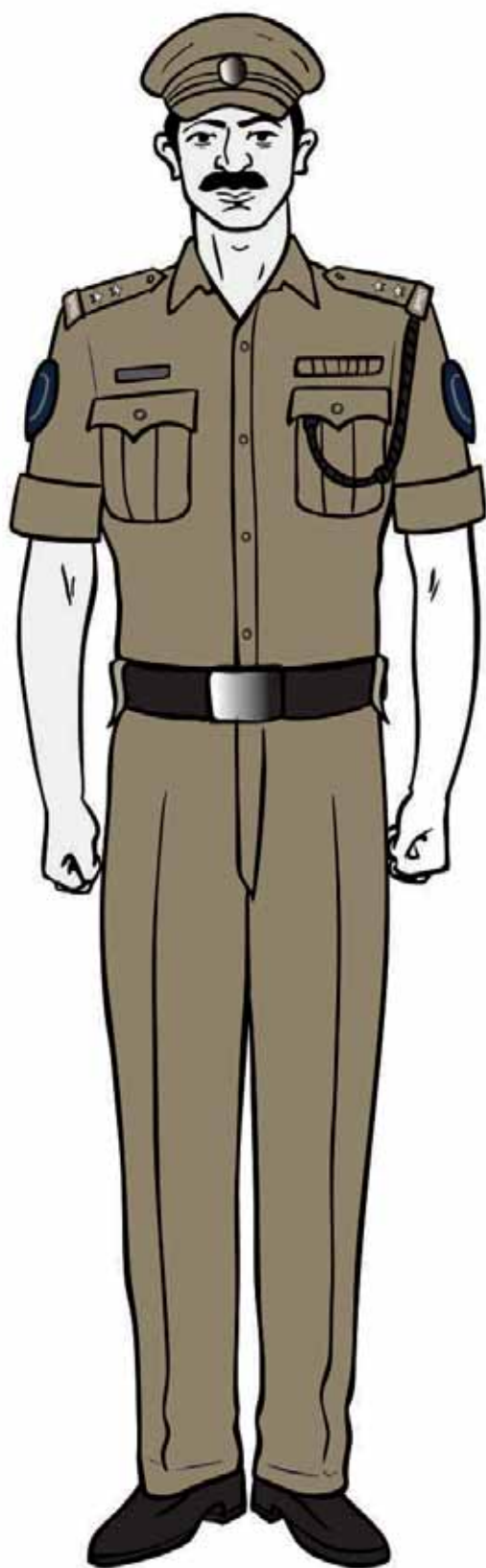
Work Uniform
Color Options



Work Uniform
Present Color



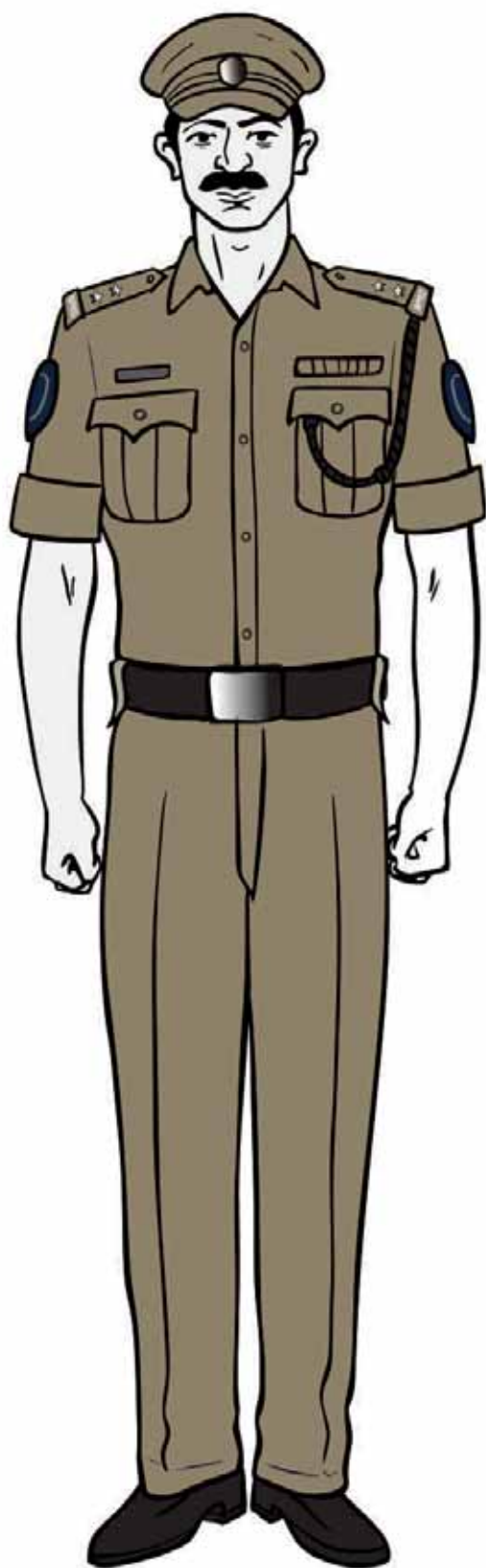
Work Uniform
Color Options



Work Uniform
Present Color



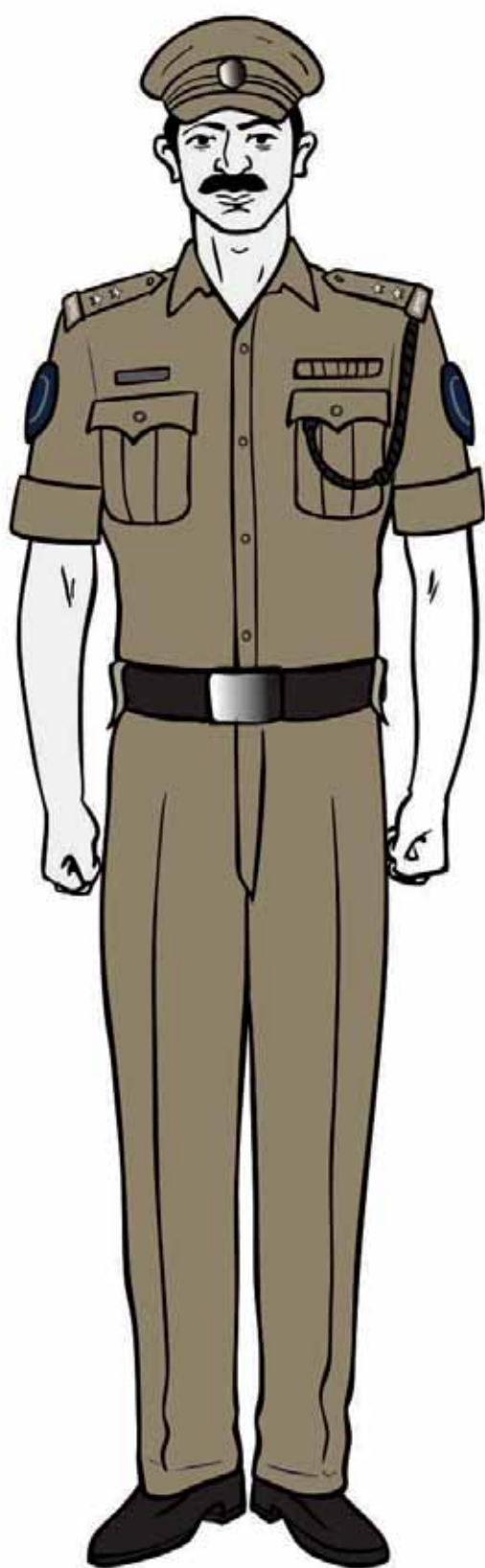
Work Uniform
Color Options



Work Uniform
Present Color



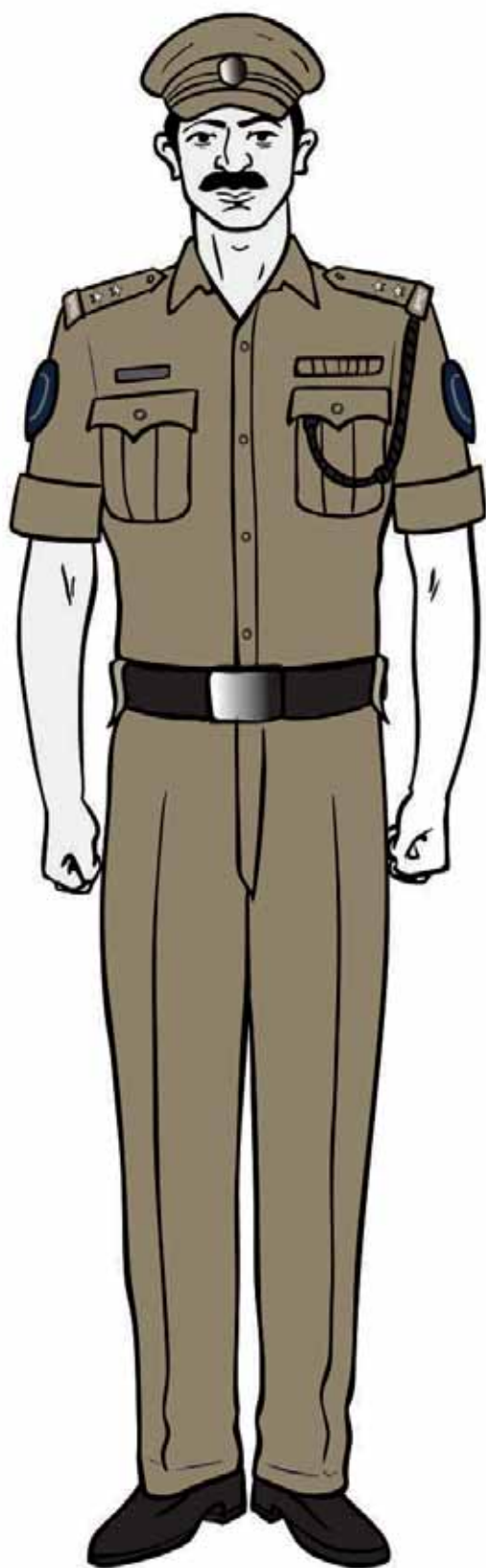
Work Uniform
Color Options



Work Uniform
Present Color



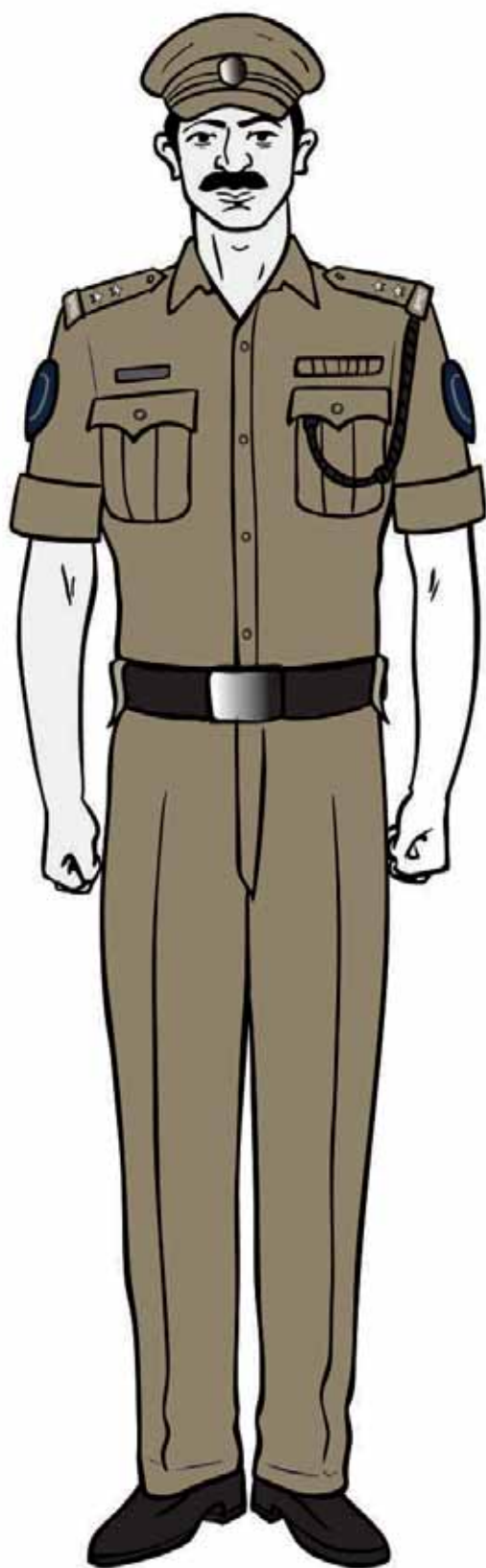
Work Uniform
Color Options



Work Uniform
Present Color



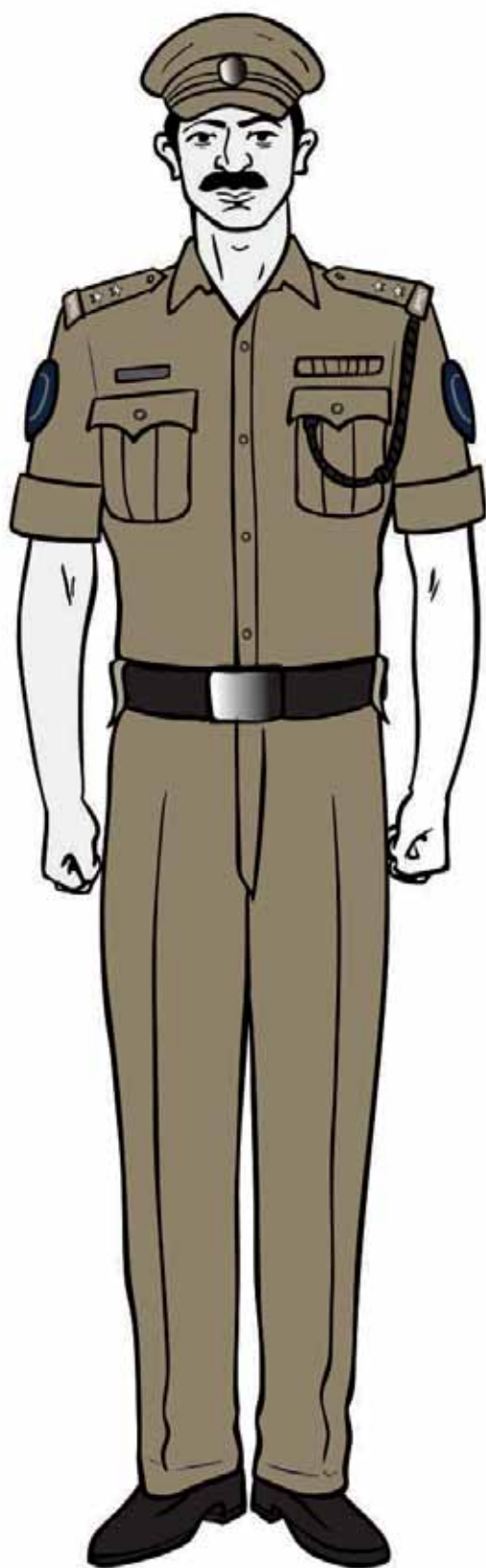
Work Uniform
Color Options



Work Uniform
Present Color



Work Uniform
Color Options



Work Uniform
Present Color



Work Uniform
Color Options

LOOK BOOK

HALF SLEEVE SHIRT



















HALF SLEEVE SHIRT WITH CAP















FULL SLEEVE SHIRT











FULL SLEEVE SHIRT WITH CAP















FULL SLEEVE SHIRT WITH BELT ACCESSORIES











DUTY JACKET











DUTY JACKET WITH CAP















DOUBLE JACKET



















RAIN WEAR











HALF SLEEVE SHIRT



















HALF SLEEVE SHIRT WITH CAP















FULL SLEEVE SHIRT











FULL SLEEVE SHIRT WITH CAP















DUTY JACKET WITH CAP















DOUBLE JACKET



















RAIN WEAR



















OPTION:01



















OPTION:02















OPTION:03



















OPTION:04

COLOR COMPOSITION

EXERCISE:01







COLOR COMPOSITION

EXERCISE:02







COLOR COMPOSITION

EXERCISE:02 WITH DUTY JACKET







COLOR COMPOSITION

EXERCISE:03







COLOR COMPOSITION

EXERCISE:04







COLOR COMPOSITION

EXERCISE:05



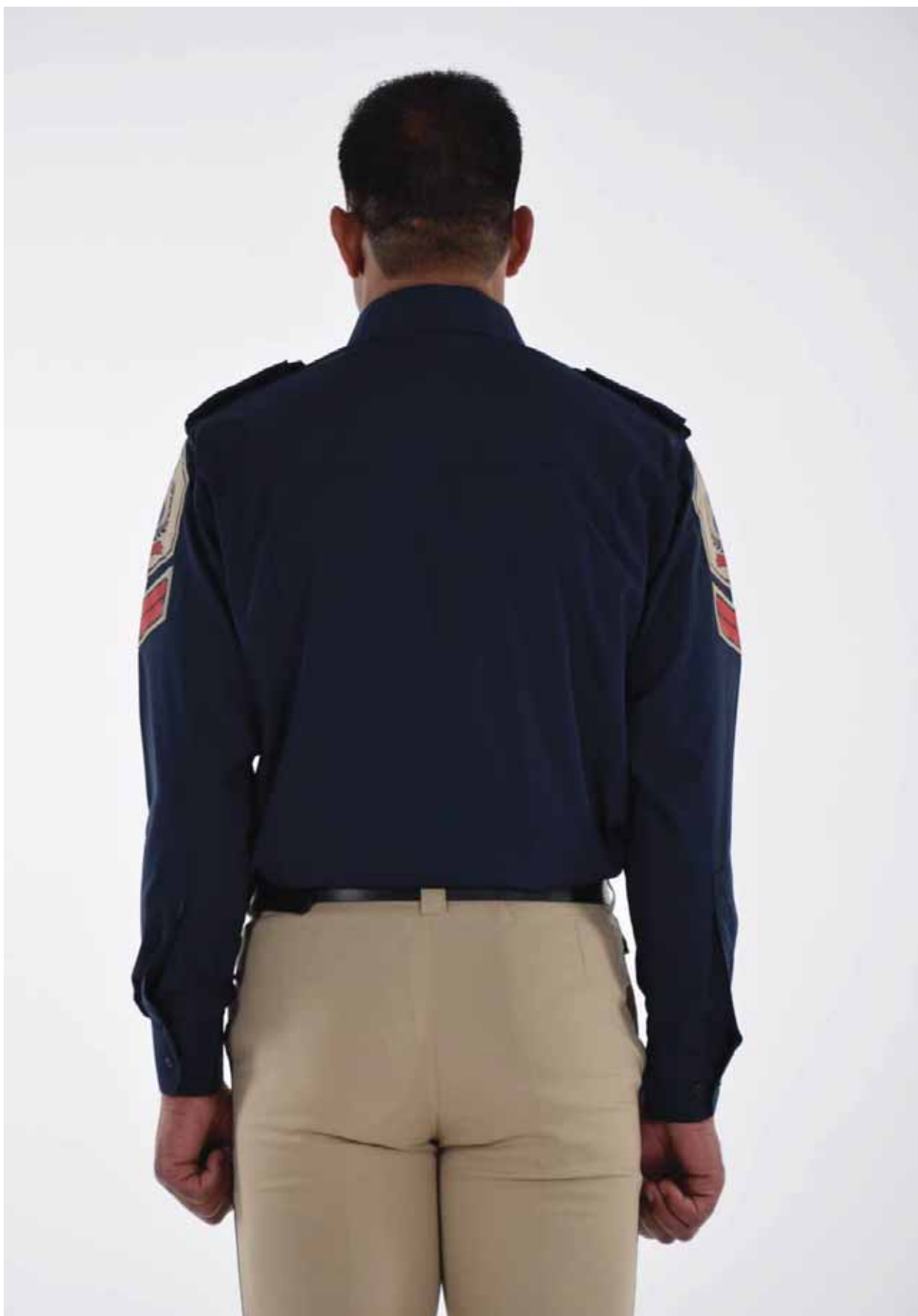




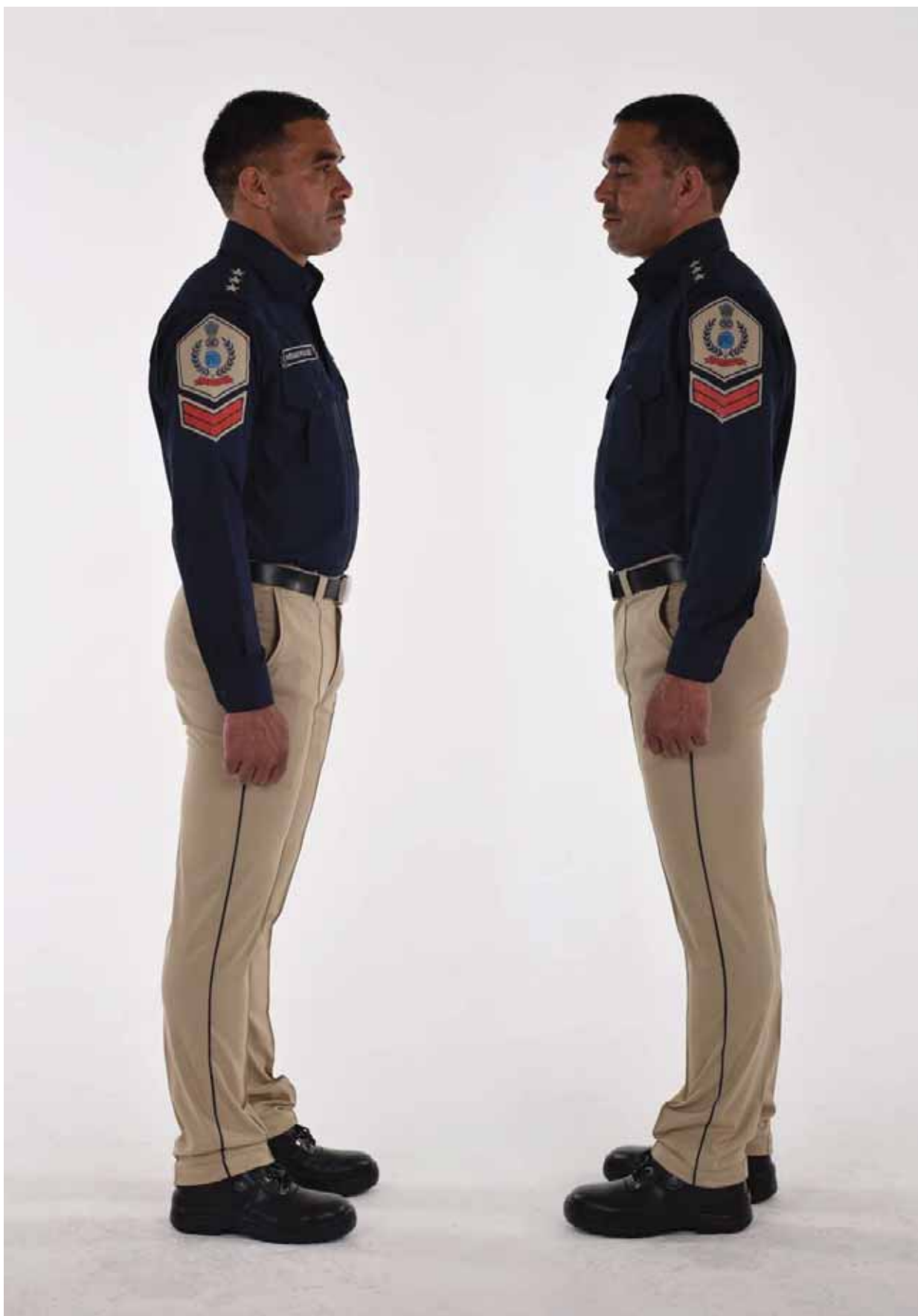


OPTION:05



















OPTION:06



















OPTION:07



















OPTION:08



















OPTION:09



















Fabric development And its properties

Working Uniform Fabric

Blend

Polyester (67%) / Viscose (33%) + Lycra

GSM

Shirt Material : 160

Pant Material : 210

Jacket Material : 210

Weave

Shirt : Plain

Pants : Trovin

Colour



Shirt
Pantone



Pant
Pantone



Insignia Base
Pantone

Working Uniform Fabric

Advantages of Polyester Viscose Blend

- Polyester Viscose (P:V) suiting's are superior to Polyester Cotton(P:C) in respect of Drape, Overall Appearance and Luster
- P:V suitings are much more comfortable than those made from P:C blends because the resultant moisture content of the 67:33 PV blend is closer to that of 100% cotton. on the other hand the resultant moisture content of PC is almost half that of PV. Viscose readily absorbs moisture and rapidly dissipates to the atmosphere thereby making the apparel feel cool and comfortable.
- Since PV is available in Dope Dyed due to which there is UNIFORMITY and Consistency of dyeing
- PV fabrics demand less maintenance leading to enhanced service life and therefore, lesser would be the frequency of purchase and a substantial cost saving

Working Uniform Fabric

Key Features of Fabric

- Antimicrobial

Provides protection against microbial infections

Provides bacteriostatic phenomena and also promising against

Fungal infections

Feel fresh & odorless

Test Method : AATCC 147

*Durability : 100 washes **

- Stretch

Stretch gives freedom of shape of fabric as per body requirements

Comfort

lycra yarns are used to provide stretch in fabric

Test Method : ASTM D 3107

*Durability : 50 washes **

- Moisture Management

Improved wicking and water absorbency properties of fabric

Fabric absorbs sweat in seconds and dries quickly to provide better

cooling effect and comfort

Test Method : AATCC 179

*Durability : 20 washes **

Working Uniform Fabric

Key Features of Fabric

- Stain Release

Stain release finish helps to remove following stains

efficiently in easy wash

tea, coffee, ketchup etc.

Test Method : AATCC 130

*Durability : 50 washes **

- Protector Enabled

Protector enabled finish compliance with following features

Anti - Dust

Anti - Pollen

Anti - Microbial & Stain Release

Test Method : AATCC 147, AATCC 130

*Durability: Anti-microbial 100 home washes & others properties 20 Washes **

- Smoothness Appearance

Improved surface smoothness

Reduced wrinkle formation

Test Method : AATCC 124

*Durability : 20 washes **

** Mentioned number of washes are as per market availability, as of now. key feature's durability (number of washes) could be increased by customization, depending on the order quantity.*

Working Uniform Fabric

Wash care Instruction for P:V Blend



Wash in domestic or commercial machine in water not exceeding 30°C, at delicate/gentle setting.



Tumble dry at a low heat (not exceeding 55°C) at delicate cycle.



Iron with or without steam by hand, or press on commercial equipment, at a medium temperature (not exceeding 150°C)
Suggested method : do not iron directly, use soft cloths on top of the fabric. Recommended temperature for polyester, rayon, silk, triacetate and wool textiles.



Do not bleach.



Dry-clean, normal cycle. Any solvent except trichloroethylene.

Working Uniform Fabric



Fabric Test Report

F/RND/02/FL
Issue No. 01

Certificate No.: T-1985/T-1984

Quality No.	852,875	Date	3/10/2015
Shade No.	Blue & Beige		
Piece no.	-		

Sr. No.	Parameters	Test Method	Test Results			
	Lab report no. -->		1029	1030	1031	1033
	Quality No. -->		875-4 (A)	875-4 (B)	852-5	852-4 (B)
1	Fabric Width	ASTM D 3774-96	147.2	148	148	147.9
2	Mass per Unit Area-gsm		169.5	166.8	201.6	214.4
3	Weight per linear mtr*	ASTM D 3778, Option C	249.5	246.9	298.4	317
4	Fabric Composition %*	BS 4407				
	Polyester		66.8	66.6	63.4	64.4
	Viscose+Lycra		33.2	33.4	36.6	35.6
5	Tensile Strength - (Kgf)	BS:EN ISO 13934-1				
	Warp way		72.6	73.2	102.5	82.9
	Weft way		59.1	70.4	80	98.7
6	Resistance to Pilling	BS:EN ISO 12945-1				
	after 18000 rev.		4	4	4	4
7	Dimensional Stability to:					
	Washing* (Warp/Weft)	AATCC 135 ;M/c Wash 40 deg. C ;Delicate cycle; Tumble dry med.	1.50/1.00	0.50/0.50	0.75/0.25	1.00/0.25
8	Colour Fastness to:					
	Washing (Colour change/staining on Poly/Cotton/Wool)	ISO 105 C-10 B(2)	4/3-4/3-4	4/3-4/3-4	4/4-5/3-4	4/3-4/3-4
9	Rubbing Dry/Wet	ISO 105 X12	4/3-4/3-4	4/3-4/3-4	4-5/4-5	4/3-4
10	Perspiration					
	Acidic (Colour change/staining on Poly/Cotton/Wool)	ISO 105 E04	4/3-4/3-4	4/3-4/3-4	4/3-4/3-4	4/3-4/3-4
	Alkaline (Colour change/staining on Poly/Cotton/Wool)	ISO 105 E04	4/3-4/3-4	4/3-4/3-4	4/3-4/3-4	4/3-4/3-4
11	Stretch/% (Weft)	ASTM D 3107	16	15.6	20.0	17.2
12	Absorbency* (Face/Back)	AATCC 179	12/10 Sec	10/8 Sec	5/4 Sec	7/7 Sec
13	Bow/Skew %*	ASTM D 3882-08	1.2/1.0	1.32/1.05	1.23/1.1	0.98/0.57
14	Anti dust* : initial/after 50 wash	In-house	3-4/4	3-4/4	4/4	3/4
	Stain release* : initial/ after 50 wash (Tea/Coffee/Ketchup)	AATCC 130	4-5/4-5	4-5/4-5	4-5/4-5	4-5/4-5
15	Appearance after repeated home Laundering (Fabric Smoothness*)	AATCC 124 (M/c Wash 27deg. C ;Delicate cycle; Tumble dry med.)	3-4	3-4	3-4	4
17	Anti microbial* after 100 wash	AATCC 147	Bacteriostatic	Bacteriostatic	Bacteriostatic	Bacteriostatic

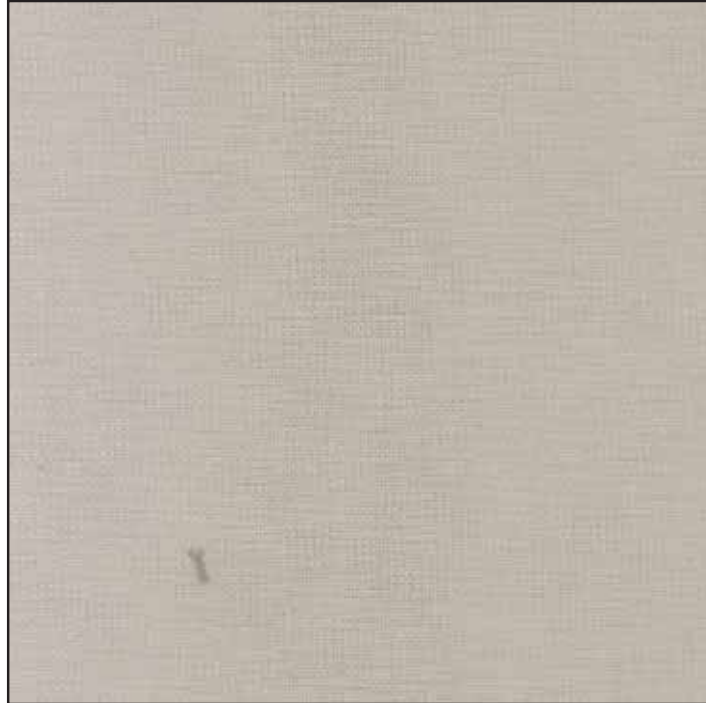
* Parameters are not in NABL scope.

R & D

RELIANCE INDUSTRIES LTD
FABRIC TEST REPORT

Fabric used for product development

FABRICS



EXTREME COLD REGION



All the images taken from Google Images for understanding the different climatic conditions of India for suggesting the suitable fabrics.

FABRICS



	Suiting SERGE	Shirting ANGOLA
a) Yarn count for Warp & Weft	2/30x 2/30 NM	2/38 X 2/38 NM
b) Width of Fabric	142cms	152cms
c) Weight per liner meter	610 gms	360 gms
d) Fabric Blend Composition	PW 20/80	PW 50/50
e) Types of Weave	3/3 TWILL	2X 2 TWILL
Finishes Applied : DE02, Protector		

HIGH ALTITUDE REGION



All the images taken from Google Images for understanding the different climatic conditions of India for suggesting the suitable fabrics.

FABRICS

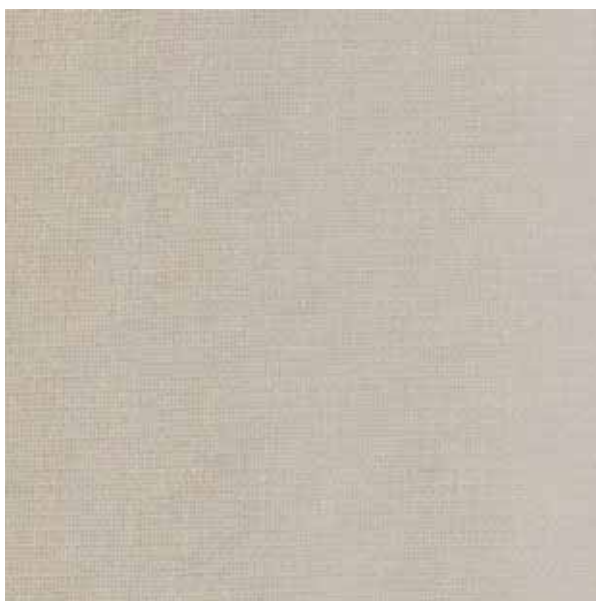


Figure 1.1: Comparison of fabric samples for the design of the garment

	Suiting SERGE	Shirting ANGOLA
a) Yarn count for Warp & Weft	2/30x 2/30 NM	2/38 X 2/38 NM
b) Width of Fabric	142cms	152cms
c) Weight per liner meter	610 gms	360 gms
d) Fabric Blend Composition	PW 20/80	PW 50/50
e) Types of Weave	3/3 TWILL	2X 2 TWILL

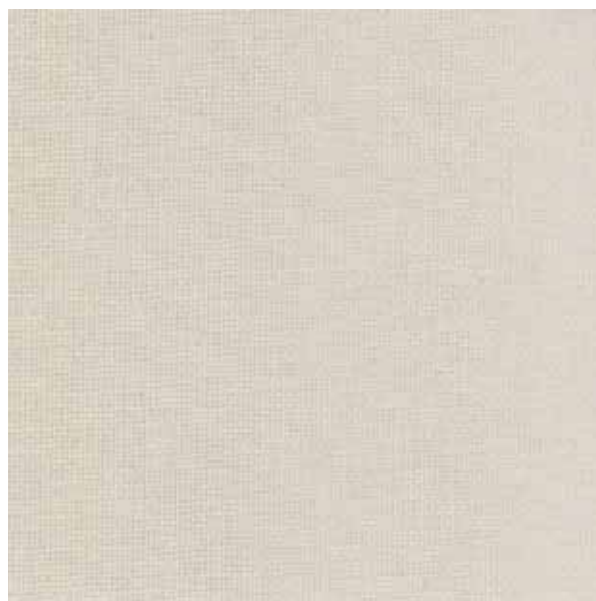
Finishes Applied : DE02, Protector

DESSERT REGION



All the images taken from Google Images for understanding the different climatic conditions of India for suggesting the suitable fabrics.

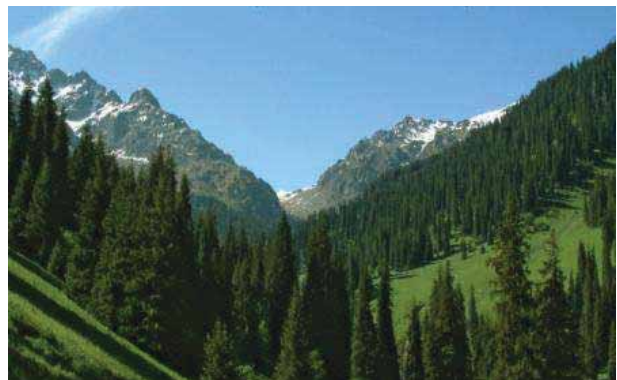
FABRICS



	Suiting	Shirting
a) Yarn count for Warp & Weft	2/30scc p/v 67:33+2/30scc p/v 67:33	2/30scc p/v 67:33+2/30scc p/v 67:33
b) Width of Fabric	150 ± 2 CM	150±2CM
c) Weight per liner meter	300 gms	300 gms
d) Fabric Blend Composition	PV 67/33	PV 67/33
e) Types of Weave	plain	plain

Finishes Applied : DEO2, Nice,

TROPICAL REGION



All the images taken from Google Images for understanding the different climatic conditions of India for suggesting the suitable fabrics.

FABRICS



10/10/2020

	Suiting	Shirting
a) Yarn count for Warp & Weft	2/30scc p/v 67:33+2/30scc p/v 67:33	2/30scc p/v 67:33+2/30scc p/v 67:33
b) Width of Fabric	150 ± 2 CM	150±2CM
c) Weight per liner meter	300 gms	300 gms
d) Fabric Blend Composition	PV 67/33	PV 67/33
e) Types of Weave	plain	plain

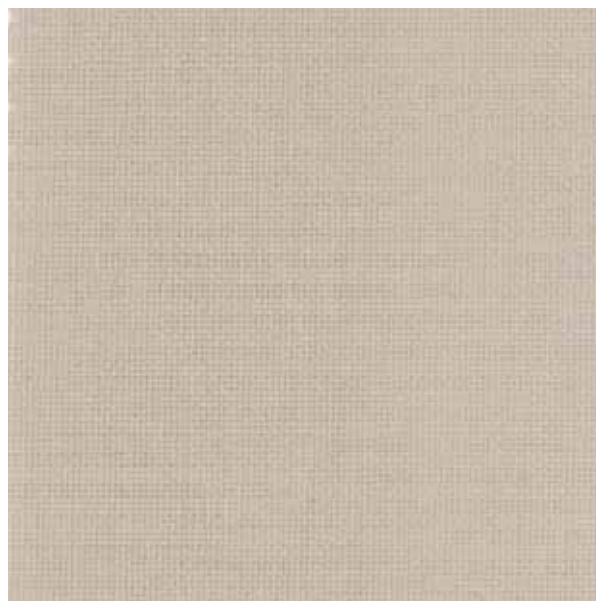
Finishes Applied : DEO2, Nice, Protector

RAINY SEASON



All the images taken from Google Images for understanding the different climatic conditions of India for suggesting the suitable fabrics.

FABRICS



	Suiting	Shirting
a) Yarn count for Warp & Weft	0.17/0.18/0.19/0.20mm	0.17/0.18/0.19/0.20mm
b) Width of Fabric	57/58"	57/58"
c) Weight per liner meter	300 G/M	300 G/M
d) Fabric Blend Composition	100% polyester	100% polyester
e) Types of Weave	plain	plain

Finishes Applied : PVC Coated

FOREST REGION



All the images taken from Google Images for understanding the different climatic conditions of India for suggesting the suitable fabrics.

FABRICS



	Suiting	Shirting
a) Yarn count for Warp & Weft	2/30scc p/v 67:33+2/30scc p/v 67:33	2/30scc p/v 67:33+2/30scc p/v 67:33
b) Width of Fabric	150 ± 2 CM	150±2CM
c) Weight per liner meter	300 gms	300 gms
d) Fabric Blend Composition	PV 67/33	PV 67/33
e) Types of Weave	plain	plain

Finishes Applied : DEO2, Nice, Protector

BORDER AREA (SPECIAL TASKS)



All the images taken from Google Images for understanding the different climatic conditions of India for suggesting the suitable fabrics.

FABRICS



	Suiting	Shirting
a) Yarn count for Warp & Weft	2/30 x 2/30 NE	2/30 X 2/30 NE
b) Width of Fabric	150 ± 2 CM	150±2CM
c) Weight per liner meter	300 gms	300 gm
d) Fabric Blend Composition	PV 67/33	PV 67/33
e) Types of Weave	plain	plain

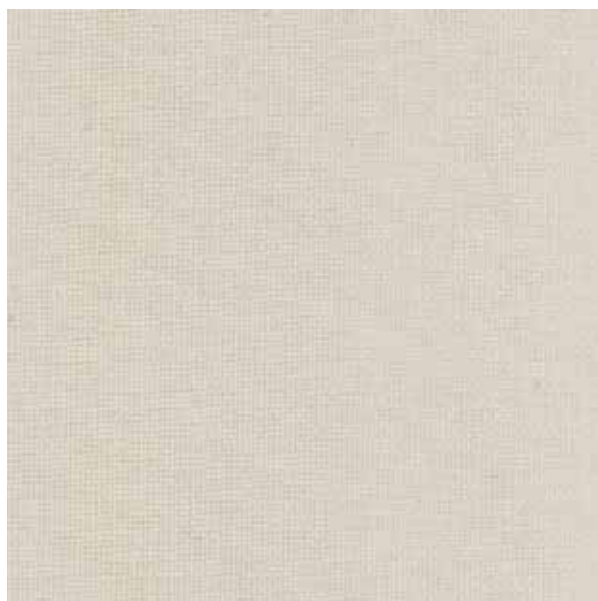
Finishes Applied : DEO2, Nice, lint free,

COASTAL REGIONS



All the images taken from Google Images for understanding the different climatic conditions of India for suggesting the suitable fabrics.

FABRICS



	Suiting	Shirting
a) Yarn count for Warp & Weft	2/30scc p/v 67:33+2/30scc p/v 67:33	2/30scc p/v 67:33+2/30scc p/v 67:33
b) Width of Fabric	150 ± 2 CM	150±2CM
c) Weight per liner meter	300 gms	300 gms
d) Fabric Blend Composition	PV 67/33	PV 67/33
e) Types of Weave	plain	plain

Finishes Applied : DEO2, Nice, Protector

METRO REGION



All the images taken from Google Images for understanding the different climatic conditions of India for suggesting the suitable fabrics.

FABRICS



	Shirting
a) Yarn count for Warp & Weft	2/30s * 10s aprx
b) Width of Fabric	57/58 "
c) Weight per liner meter	300 GSM Aprx
d) Fabric Blend Composition	100% Polyster or Polyster 55% /cotton 45%
e) Types of Weave	plain

RURAL REGION



All the images taken from Google Images for understanding the different climatic conditions of India for suggesting the suitable fabrics.

FABRICS



	Suiting	Shirting
a) Yarn count for Warp & Weft	2/30scc p/v 65:35+370 den p/v lycra	2/50scc p/v 65:35+230 den p/v lycra
b) Width of Fabric	148cms	148cms
c) Weight per liner meter	310gms	250 gms
d) Fabric Blend Composition	64:34:2 p/v/lycra	64:34:2 p/v/lycra
e) Types of Weave	plain	plain

Finishes Applied : DEO2, Nice, Protector







NATIONAL DESIGN
BUSINESS INCUBATOR

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