

### भारतीय विमानपत्तन प्राधिकरण AIRPORTS AUTHORITY OF INDIA

दिनांक/Date: 07/02/2022

### No. एचआर/प्रशिक्षण/05/2021/

Prof. Himani Singh Dean K.R. Mangalam University Sohna Road. Gurugram -122 103. E-Mail -

### INTERNSHIP ORDER NO -112/2021

Sub:

Internship training in Airports Authority of India - Reg.

Sir/Madam,

Reference your letter/email dated 07/02/2022 on the subject cited above.

The Competent Authority has accepted your request to accommodate Ms. Deeksha Khati bonafide students of B. Arch. of your College/University/Institute for internship training in Planning Deptt., CHQ for a period of Six (06) month starting from 07/02/2022 in Airports Authority of India on the following conditions:

- The acceptance of nomination is purely the prerogative of AAI subject to feasibility and convenience;
- No financial liability will be borne by AAI towards the nominated student by way of stipend or otherwise (TA/DA lodging/boarding etc.);
- The nomination of the students should be sponsored by the respective University/Institute with intent and the areas of the familiarization required;
- The students have to conduct themselves in a proper manner during working hours and have to abide by the instructions of the official to whom they are reporting. The students in no way disrupt, by their intervention, the normal functioning of the offices where they are undergoing familiarization;
- On expiry of the assigned period, students may submit project report on the subject. However, students should ensure that no adverse remarks about AAI are reflected in such report;
- AAI at its discretion, without assigning any reason, may discontinue the internship.
- Internship will not confer any right on the nominated students for employment in the organization
- The students shall abide by all prescribed security-standards and norms on photography, secrecy etc. while on internship.
- The finalization of nomination will be subject to acceptance of the above conditions by the University/institute as well as the student.
- The respective University/institute should undertake that the nominated students shall abide by all the above provisions/conditions during their nomination to AAI. Any pecuniary loss or damage to the reputation of AAI caused by the nominee by way of their conduct, actions or indulgence shall be liable to be compensated either by the student or by the University/institution.

Ms. Deeksha Khati is advised to report to Shri Anurag Mishra, JGM (Arch.) CHQ, Airports Authority of India, New Delhi for internship training. Yours sincerely

(Brij Raj Chauhan Asstt. GM (HR)

प्रतिलिपि/Copy to:

1. The above intern

2. Shri Anurag Mishra, JGM (Arch.) CHQ, Airports Authority of India, New Delhi.

Registrar .

K.R. Mangalam University Sohna Road, Gurugram (Harvana)

राजीव. गांधी भवन Rajiv Gandhi Bhawan

सफदरजंग हवाई अड्डा नई दिल्ली-110003 Safdarjung Airport, New Delhi-110003 दूरभाष: 24632950

Phone: 24632950



### भारतीय विमानपत्तन प्राधिकरण AIRPORTS AUTHORITY OF INDIA

Date: - 28.06.2022

### CERTIFICATE

This is to certify that Ms. Deeksha Khati D/o. Mr Girish Singh Khati, a student of B.Arch, 4th Year from K.R Mangalam University, Sohna, Gurgaon, has done her professional internship in our organization for 5 months starting from 7th February, 2022 to 30th June, 2022.

During the above period, she has worked on the following projects:

- 1. ATC Tower cum Technical Block, Chennai, Tamil Nadu.
- 2.' DRS Building, Chennai, Tamil Nadu.
- 3. Hyderabad Training Centre, Hyderabad, Telangana.
- 4. ASGCV Documentation (Accessibility Standards & Guidelines for Civil Aviation)
- 5. Conceptual Presentation Coimbatore, Madurai and Calicut Airport (Master Planning-Airports):

During her internship, she was involved in various projects related to Architecture and Planning under the guidance of a dedicated team. She has been found to be sincere, hardworking and inquisitive.

We wish her all the best for her future endeavours.

(Anurag Mishra)

Jt. General Manager (Arch.)

अनुराग मिश्रा / Anurag Mishra ल महाप्रबंधक (बास्तु) / Jt. General Manager (Arch.) কিশে / Airports Authority of India राजीव गांधी भवन / Rajiv Gandhi Bhawan फदरजंग हवाई अड्डा / Safdarjung Airport नई दिल्ली-110003 / New Delhi-110003

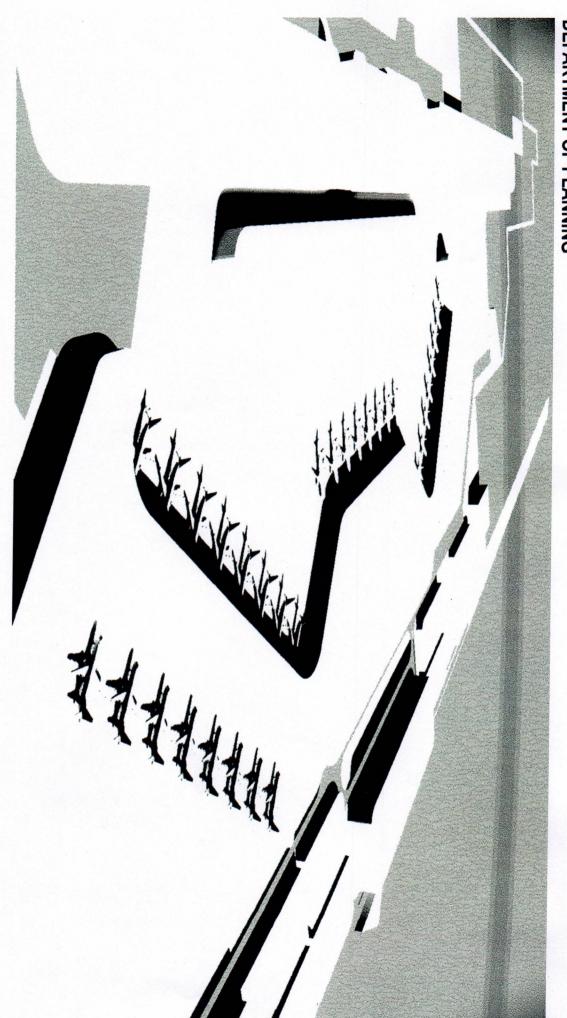
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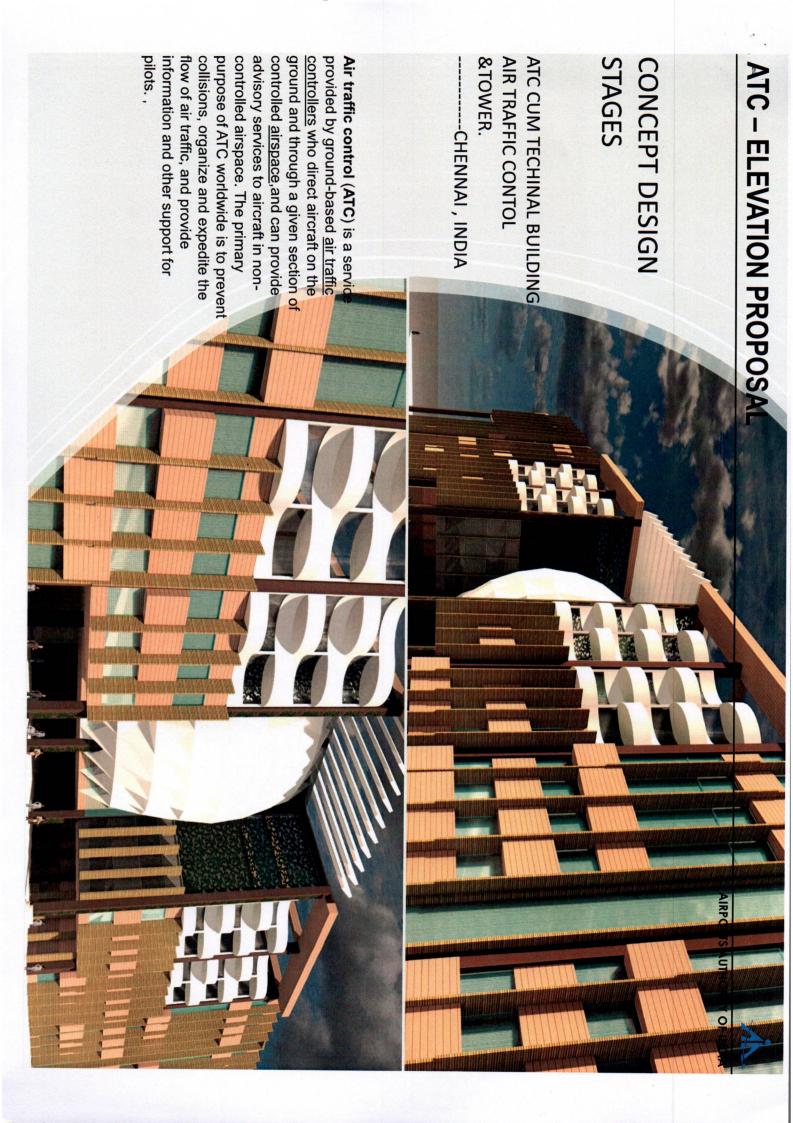
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# **ARCHITECTURE INTERNSHIP PORTFOLIO 2022**

DEEKSHA KHATI







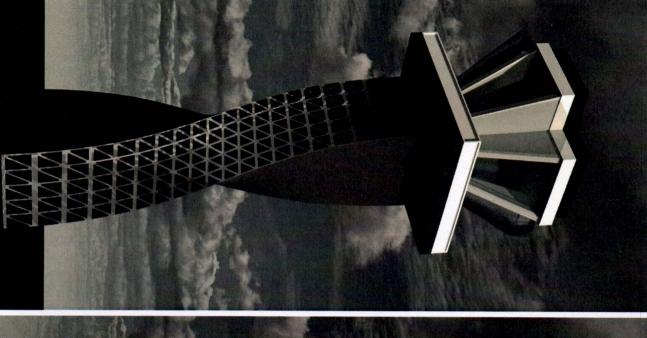


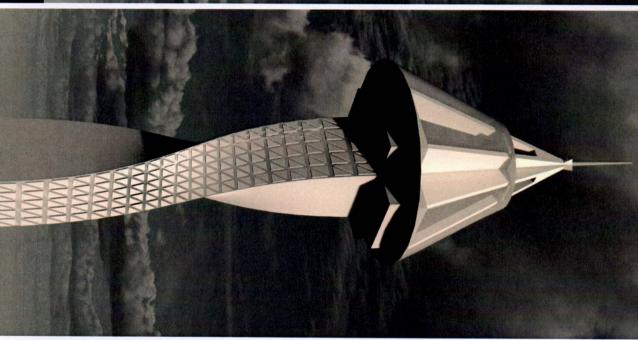


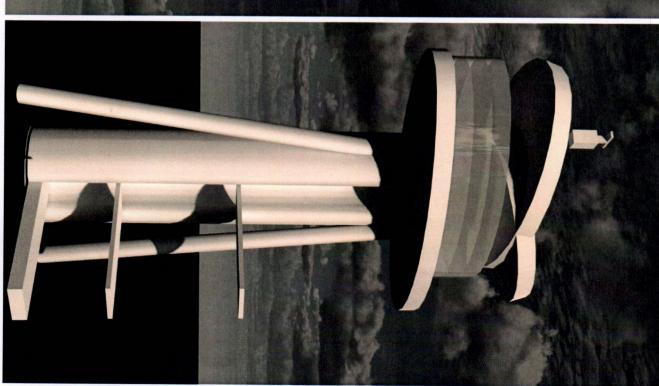
STAGE - 1

STAGE - 2





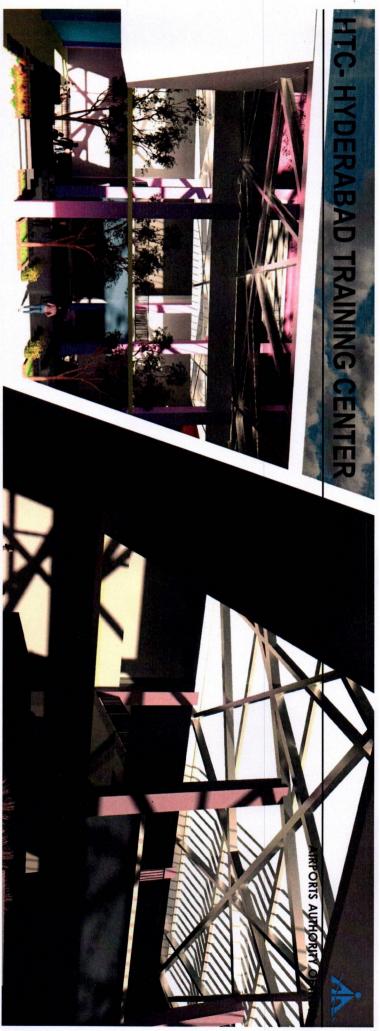




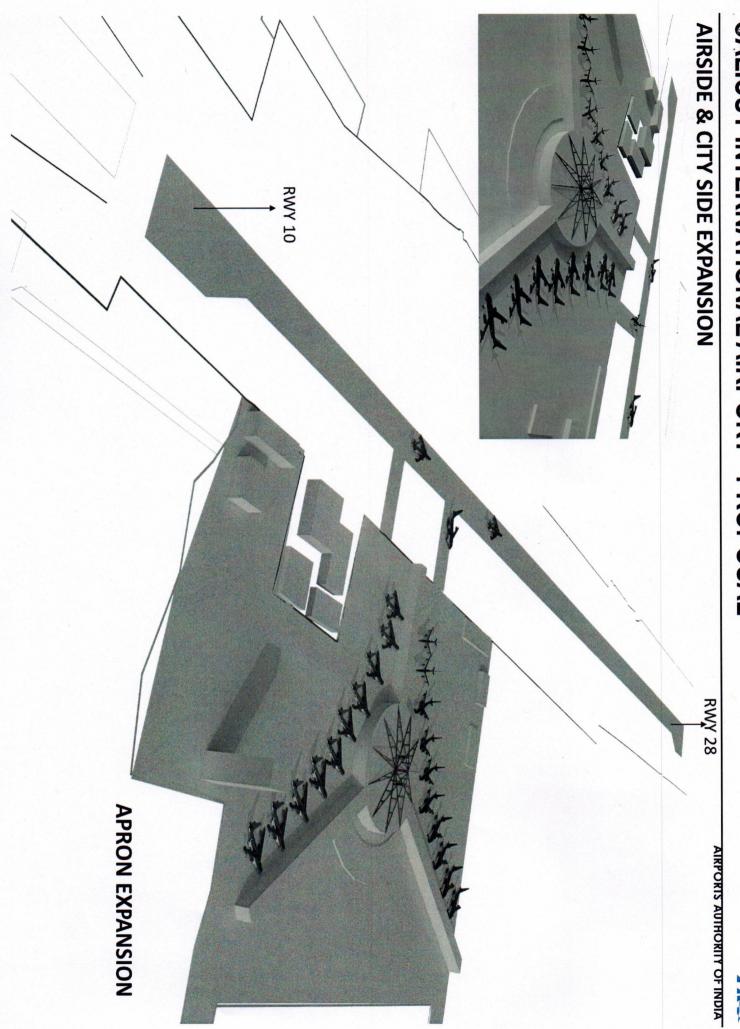


STAGE - 3 (PRE-FINAL) AIRPORTS AUTHORITY OF INDIA





# **CALICUT INTERNATIONAL AIRPORT - PROPOSAL**

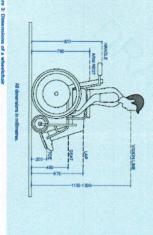




# **ACCESSIBILITY STANDARDS & GUIDELINES FOR CIVIAL AVIATION**

ACCESSIBILITY STANDARDS AND GUIDELINES FOR CIVIL AVIATION







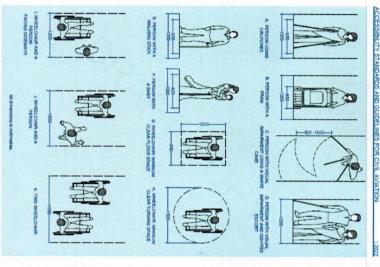






FIGURE 1: ANTHROPOMETRIC AND SPATIAL ALLOWANCES

- 920 MM and the clear width required for circulation is 1200 mm Figure A shows the space required for a person with crutches is
- MM and the clear width required for circulation is 1200 mm.
- Figure D shows the space required for two persons with visual
- impairment and sighted escort is 1200 mm.
- Figure E shows the space required for a person with walking stick is 920 and the clear width required for circulation is 1200 mm. Figure F shows the space required for a person with a baby is 920
- Figure I shows the minimum width required of a person with with wheelchair is 1500 mm.
- wheelchair and a person facing sideways is 1200 mm.

Figure J shows the minimum width required of a person with

wheelchair is 1800 mm. Figure K shows the minimum width required of two persons with

## Anthropometric Measurements for different users

- Figure B shows the space required for a person with pram is 600
- Figure C shows the space required for a person with white cane is  $900\ \mathrm{MM}$  and the clear width required for circulation is  $1500\ \mathrm{MM}$

- Figure G shows the minimum space required for a person with and the clear width required for circulation is 1200 mm.
- wheelchair is 1200 mm by 1200 mm.
- Figure H shows the minimum clear turning space for a person

Anthropometric diagrams showing reach of person sitting on a wheelchair. FIGURE 2: REACH DIAGRAM

**AIRPORTS AUTHORITY OF INDIA** 

Figure A shows the person's maximum forward upper reach without obstruction is 1200 MM.

Figure B shows the person's Minimum lower upper reach

- Figure C shows the person's Minimum forward reach with 600 mm, and their grip reach is 500 MM. obstruction is 1000 MM. The person's maximum touch reach is
- Figure D shows the person's Maximum side upper reach without obstruction is 1300 MM.
- Figure E shows the person's Maximum side lower reach without Figure D shows the person's Minimum side reach without obstruction is 250 MM.
- 600 mm, and their grip reach is 500 MM.

bstruction is 1200 MM. The person's maximum touch reach is

### FIGURE 3: DIMENSION OF A WHEELCHAIR

ANTHROPOMETRIC MEASUREMENTS FOR WHEELCHAIR USERS.

Anthropometric diagram showing different dimensions of a person stitting on a wheelchair. The height of the person's vision line is 1100mm-1300mm. The height of the person's lap 675 MM. The seat's height id 480 MM. The person's the has a height of 200 mm. The arm rest's height is 760 MM and the handle has a height of 920 MM.

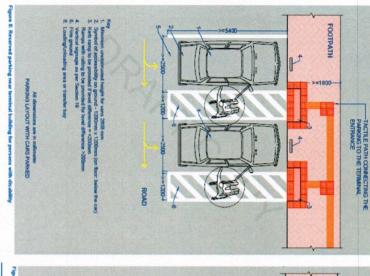


PRM TOILET - CHANDIGRAH AIPORT

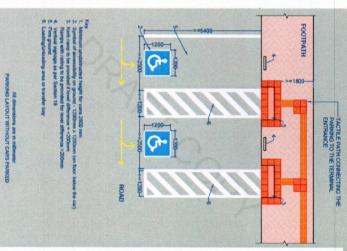
# **ACCESSIBILITY STANDARDS & GUIDELINES FOR CIVIAL AVIATION**

ACCESSIBILITY STANDARDS AND GUIDELINES FOR CIVIL AVIATION

ACCESSIBILITY STANDARDS AND GUIDELINES FOR CIVIL AVIATION



FOR CIVIL AVIATION



### FIGURE 2: REACH DIAGRAM

wheelchair. Anthropometric diagrams showing reach of person sitting on a

FIGURE: 4 SCHEMATIC DIAGRAM SHOWING THE PERFERRED LOCATION OF RESERVED PARKING FOR PERSOND WITH DISABILITY NEAR TERMINAL BUILDING

- Figure A shows the person's maximum forward upper reach without obstruction is 1200 MM.
- Figure B shows the person's Minimum lower upper reach without obstruction is 400 MM.

for people with disabilities.

departure side is on the left. Near the departure is reserved parking The arrival side of the terminal building is on the right, while the

- Figure C shows the person's Minimum forward reach with 600 mm, and their grip reach is 500 MM obstruction is 1000 MM. The person's maximum touch reach is
- Figure D shows the person's Maximum side upper reach without obstruction is 1300 MM.
- Figure E shows the person's Maximum side lower reach without obstruction is 250 MM.
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### FIGURE 3: DIMENSION OF A WHEELCHAIR

ANTHROPOMETRIC MEASUREMENTS FOR WHEELCHAIR USERS.

sitting on a wheelchair. The height of the person's vision line is 1100mm–1300mm. The height of the person's lap is 675 MM. The seat's height is 480 MM. The person's toe has a height of 200 mm. The arm rest's height is 760 MM and the handle has a height of 920 MM. Anthropometric diagram showing different dimensions of a person

FIGURE: 5 RESERVED PARKING NEAR TERMINAL BUILDING FOR PERSONS WITH DIASABILITY

2000MM is marked on the floor beneath the car. A tactile path connects the parking lot to the terminal entrance. If the level difference is less than 200 MM, ramp must be provided. For level difference greater than 200 MM, ramps with railing must be provided. must have a minimum unobstructed height of 2600 MM. On the A car parking must be at least 5400 MM by 2500 MM in size. Vans The vertical signage is provided as per section 19. ground, a universal accessibility symbol measuring 1200MM by



SIGNAGE

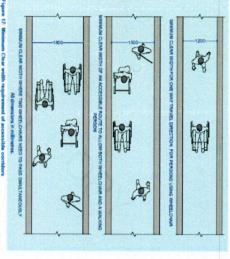


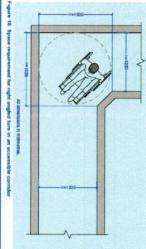
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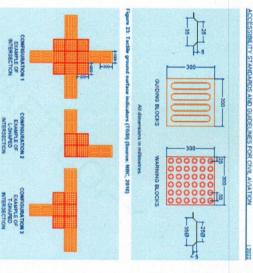
## ASGCV

# **ACCESSIBILITY STANDARDS & GUIDELINES FOR CIVIAL AVIATION**

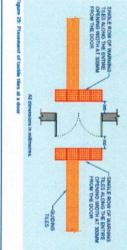
CCESSIBILITY STANDARDS AND GUIDELINES FOR CIVIL AVIATION











### FIGURE: 16 PREFERRED WIDTH OF CORRIDOR

The figure shows all of the doors to open out from the corridor. After the tactile flooring throughout the accessible route, as well as elements present in the corridor, such as plants is minimum clear width of the corridor.

## FIGURE: 17 MINIMUM CLEAR WIDTH REQUIREMENT OF ACCESSIBLE CORRIDOR

- for two wheelchair to pass simultaneously

## FIGURE: 18 SPACE REQUIREMENT FOR RIGHT ANGLED TURN IN AN

The figure shows the width of the corridor required is 1200 mm and the space required for right angled turn is not less 1500 mm. ACCESSIBLE CORRIDOR

- Figure A shows that for wheelchair users, the minimum clear width for one-way travel is 1200 mm.
- Figure B shows an accessible route must have a minimum clear width of 1500 mm for both a wheelchair and a walking person to
- Figure C shows the minimum clear width of 1800 mm is required

The figure shows the width of the ramp is 300 mm. The ramp begins on the left side and ends on the right side and the strip (two rows) of FIGURE: 27 HANDRAILS AND TACTILE FLOORING FOR RAMPS WITH RAILING

CHAPTER - 13 RAMPS

## FIGURE: 28 EXAMPLES OF DIFFERENT TYPES OF RAMPS WITH

is 50 mm and minimum width is 38 mm.

all and the handrails is 50 mm with the maximum width of handrail

inimum width is 38 mm; in wall mounted, the space between aximum width of an independent handrail is 50 mm, and the andrails is 900-1100 mm. Hand rails at two levels and extended at

the ends (300 mm). The figure also shows the handrail details the

accessible route. Two level of handralis; the height of the first level of handralls is 600-750 mm and the height of the second level of

varming tiles is 600 mm. Also the guiding tiles is connecting to

tiles is provided in the middle of the ramp. The third picture is an example of 90 Degree turn in which Slope of the ramp is not less 1:12 The figure shows three types of ramps with railing. The first picture is an example of straight <u>cun in</u> which Slope of the ramp is not less than and the width of the ramp is 1500 mm. Two rows of warming tiles 300 beginning and ending of the ramp is provided and one row of warming the ramp is 1800 mm. Two rows of warming tiles 300 mm before the warming tiles 300 mm before the beginning and ending of the ramp is provided. The second picture is an example of 180 Degree turn in 1:12 and the length of the ramp is greater than 1200mm. Two rows of which Slope of the ramp is not less than 1:15 and the clear width of



**GUIDLING TILES** 





## ASGCV

# **ACCESSIBILITY STANDARDS & GUIDELINES FOR CIVIAL AVIATION**

ACCESSIBILITY STANDARDS AND GUIDELINES FOR CIVIL AVIATION

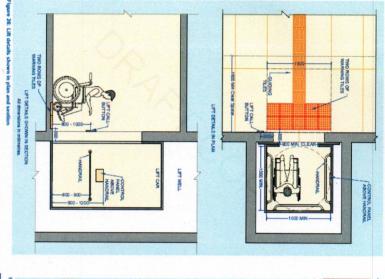


Figure 27: Handrails and ta	1000 1000 E 1	HAND SALL AT THO THE ENGL AND ENTRACED AT THE ENGL SALL AND ENTRACED AT	Table 4: Changes in lev *Exception - fixed link !
All dimensions in milities of tactile flooring for ramp with rail	PAR TICTUR PLOYER DESIGNATION OF TAKET IN COMMENT OF TAKET	And the second of the second o	rs in levets rd link bridge/ Fixed finger/ Aerobridge/ P
Pag.	RAMP ENGING	AND WASHINGS SUMP AND WASHINGS	Passenger Boarding Bridge)

CCESSIBILITY STANDARDS AND GUIDELINES FOR CIVIL AVIATION Gradient not steeper than edge treatment may not be required

33

The figure shows all of the doors to open out from the corridor. After the tactile flooring throughout the accessible route, as well as elements present in the corridor, such as plants is minimum clear width of the corridor.

## FIGURE: 17 MINIMUM CLEAR WIDTH REQUIREMENT OF ACCESSIBLE CORRIDOR

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an example of straight  $\underline{\text{run }\underline{\text{in}}}$  which Slope of the ramp is not less than 1:12 and the length of the ramp is greater than 1200mm. Two rows of beginning and ending of the ramp is provided and one row of warming tiles is provided in the middle of the ramp. The third picture is an the ramp is 1800 mm. Two rows of warming tiles 300 mm before the warming tiles 300 mm before the beginning and ending of the ramp is ind the width of the ramp is 1500 mm. Two rows of warming tiles 300 which Slope of the ramp is not less than 1:15 and the clear width of provided. The second picture is an example of 180 Degree turn in xample of 90 Degree turn in which Slope of the ramp is not less 1:12



## **DOCUMENTATION WORK**



## **AIRPORTS AUTHORITY OF INDIA**

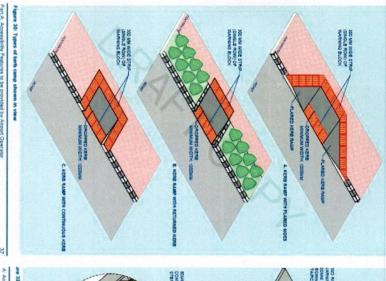
**CHAPTER - 13 RAMPS** 

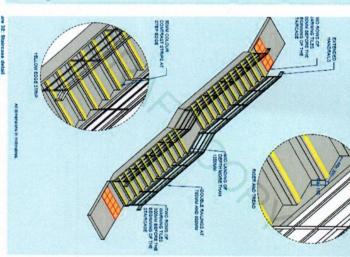
FIGURE: 27 HANDRAILS AND TACTILE FLOORING FOR RAMPS WITH

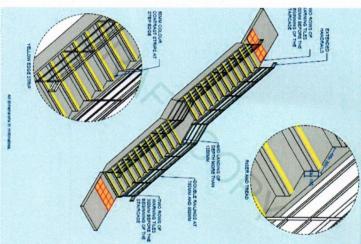
the ends (300 mm). The figure also shows the handrail details the maximum width of an independent handrail is 50 mm, and the on the left side and ends on the right side and the strip (two rows) of warming tiles is 600 mm. Also the guiding tiles is connecting to is 50 mm and minimum width is 38 mm. The figure shows the width of the ramp is 300 mm. The ramp begins wall and the handrails is 50 mm with the maximum width of handrail minimum width is 38 mm; in wall mounted, the space between the handralls is 600- 750 mm and the height of the second level of handralls is 900-1100 mm. Hand rails at two levels and extended at accessible route. Two level of handrails; the height of the first level of

ACCESSIBILITY STANDARDS AND GUIDELINES FOR CIVIL AVIATION

**ACCESSIBILITY STANDARDS & GUIDELINES FOR CIVIAL AVIATION** 







### FIGURE: 29 KERB RAMP WITH CONTINUOUS KERB

The figure shows three different types of kerb ramp. The first picture four sides of the drooped kerk minimum width 1200mm. which warming block (single row of 300 mm wide) is provided all the footpath. The third picture shows kerb ramp with continuous kerb in mm wide). Also the buffer zone with planters is provided before the 1200 mm is provided in between the warming block (single row of 300 with returned kerb in which dropped kerb with minimum width of provided after the dropped kerb. The second figure shows kerb ramp keth ramp and 300 mm wide strip (single row) of warming block is minimum width of 1200 mm is provided in between the two flared shows kerb ramp with flared sides in which dropped kerb with

### FIGURE: 30 TYPES OF KERB RAMP SHOWN IN VIEW

The figure shows three different types of kerb ramp. The first view ow of 300 mm wide). Also the buffer zone with planters is provided erb ramp with returned kerb in which dropped kerb with minimum lared kerb ramps and 300 mm wide strip (single row) of warming shows kerb ramp with flared sides in which dropped kerb with idth of 1200 mm is provided in between the warming block (single lock is provided after the dropped kerb. The second view shows imum width of 1200 mm is provided in between the two side

mm before the beginning and ending of the ramp is provided and one row (90 turn) of warming tiles is provided in the middle of the ramp. wide) is provided all the four sides of the drooped keth minimum width 1200mm.

FIGURE: 31 HANDRAILS FOR STEPS AND STAIRS

### FIGURE: 32 STAIRCASE DETAIL

width is 38 mm.

mm with the maximum width of handrail is 50 mm and minimum in wall mounted, the space between the wall and the handrails is 50 an independent handrail is 50 mm, and the minimum width is 38 mm; mm. The figure also shows the handrail details the maximum width of second level is 900 mm and the width of the landing hand-rail is 300 two levels; the height of the first level is 750 mm and the height of the The figure shows staircase with railing details in which Hand rails at

at height of 750 mm and 900 mm is provided. The third detail shows staircase. Mid landing of depth more than 1200 mm and double railing warming tiles 300 mm is provided before the beginning of the of the tread is 300 mm. The second detail shows the two rows of The figure shows three different details of staircase. The first detail ellow edge strip which is 50 mm wide is provided at the step edge shows maximum height of the riser is 150mm and the minimum width

## FIGURE:33 HANDRAILS AT TWO LEVELS TO HELP CHILDREAN,OLD PEOPLE AND PEOPLE WITH SHORT STATURE

handrails is 900-1100 mm. handralls is 600- 750 mm and the height of the second level of The figure shows two level of handrails; the height of the first level of



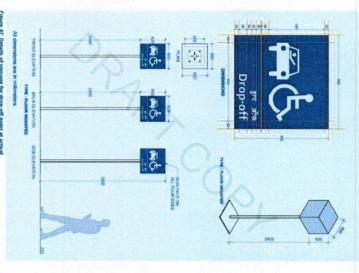
STAIRCASE



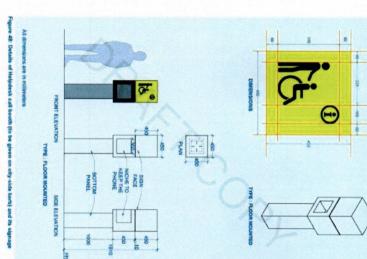


# **ACCESSIBILITY STANDARDS & GUIDELINES FOR CIVIAL AVIATION**

ACCESSIBILITY STANDARDS AND GUIDELINES FOR CIVIL AVIATION



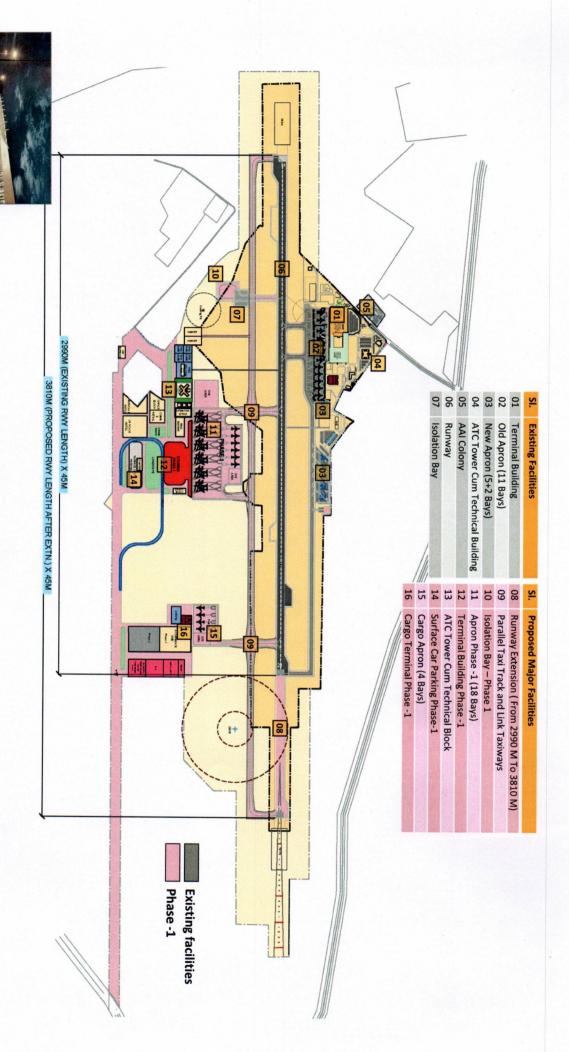


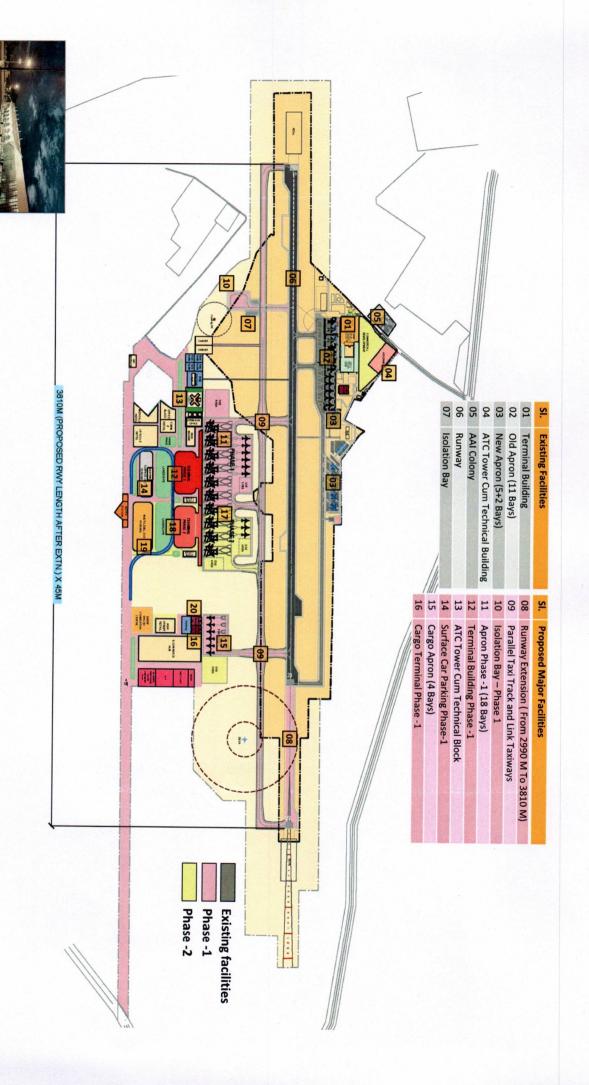






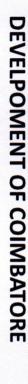
SINAGE- CHANDIGRAH AIPORT

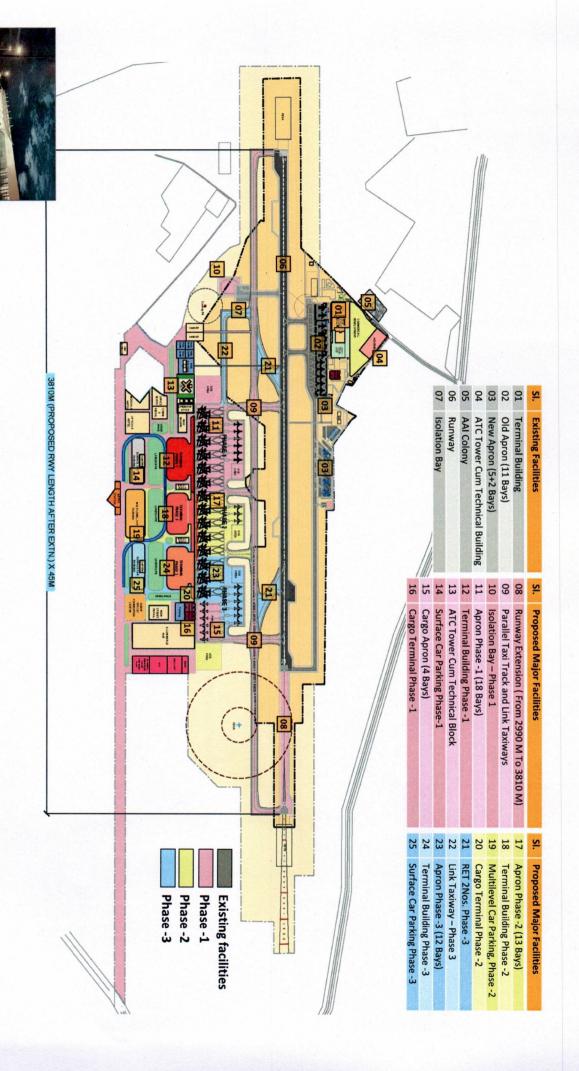




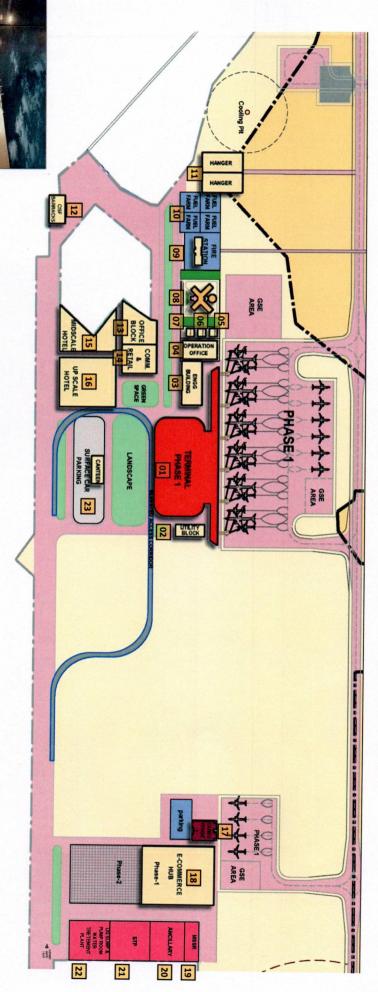
















## **AIRPORTS AUTHORITY OF INDIA**



06 92

SI. Item





10	09	80	07	90	05	04	03	02	01	SI.
Fuel Farm	Fire Station	Technical Block + ATC	CCR HALL	Warehouse	MT Workshop	Operations Office	Engg Building	Utility Block Phase-1	New Terminal Building Phase -1	Item
21	20	19	18	17	16	15	14	13	12	SI.

				No.							
22	21	20	19	18	17	16	15	14	13	12	SI.
UG Sump, Pump Room & Water Treatment Plant	STP	Ancillary	MSSR Building	E-Commerce Hub - 1	Cargo Phase – 1	Up scale hotel	Midscale Hotel	Commercial & Retail	Office Block	CISF Barracks	Item
33	32	31	30	29	28	27	26	25	24	23	SI.

	SI.	Item
acks	23	Surface Car Parking & Canteen
ock	24	New Terminal Building Phase -2
cial & Retail	25	Utility Block Phase-2
Hotel	26	Multi Level Car Park
hotel	27	Metro Station
ase - 1	28	Cargo Phase – 2
erce Hub - 1	29	High Street Retail
ilding	30	<b>Event Space/ Convention Centre</b>
	31	E-Commerce Hub Phase – 2
	32	New Terminal Building Phase -3
), Pump Room & Water Treatment Plant	33	Surface Car Parking & Canteen



# **CALICUT - EXISITING FACILITIES**

**DEVELPOMENT OF CALICUT** 





PRESENTATION WORK

Existing land area 372.54 Acres

Terminal Capacity MPPA

Peak hour Capacity 12 Nos.(1 no. A-310, 2 Nos. A-300, 8 Nos. A-321 & 1 no. A320)

## **DEVELPOMENT OF CALICUT**

### **RESA AT RWY 10**

**EXISTING PART** 

TERMINAL

90 M X 90 M





EMBANKMENT

PERIMETER



