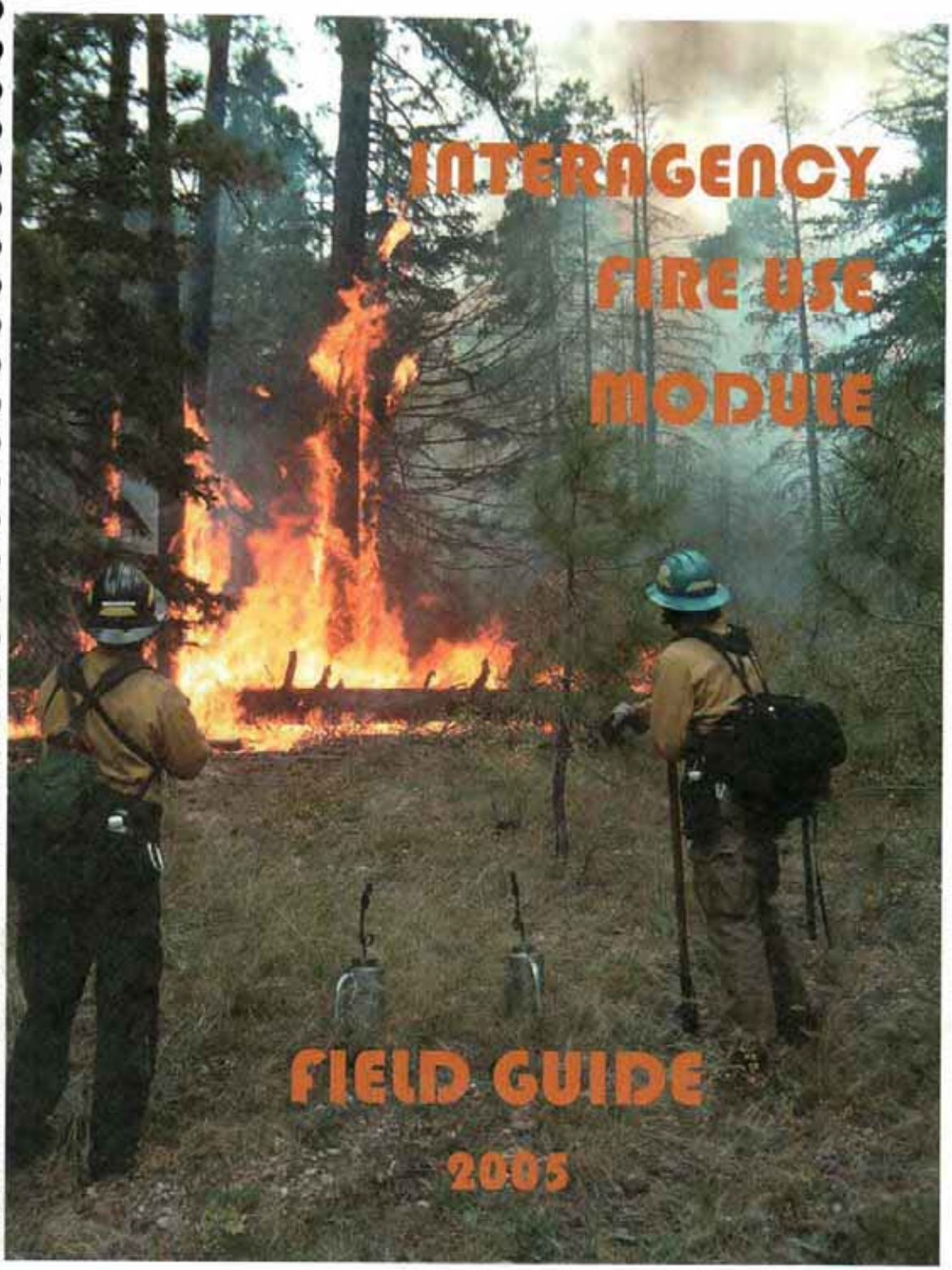


INTERAGENCY FIRE USE MODULE

FIELD GUIDE

2005

For changes or additional needs relating to this document please contact:

Dick Bahr
Fire Use Specialist
National Park Service
3833 S. Development Ave.
Boise, ID 83705-5354
(208) 387-5217
dick_bahr@nps.gov

Suggestions and comments are always welcome. Please send additional forms and checklists or modifications to those provided in this guide that field users find helpful in doing their day-to-day job of monitoring. These will be reviewed for possible inclusion in future versions of this guide.

Table of Contents

Introduction

The Interagency Fire Use Module Field Guide originated from an identified need at the 2001 Fire Use Module meeting. In collaboration with the National Park Service, US Forest Service and the US Fish and Wildlife Service this field guide has been developed to help standardize Fire Use Module (FUM) products and provide the opportunity to produce consistent, quality, fire use documentation.

As can be expected, not all forms or summaries will meet all needs, the key is to remain flexible and consistent. When incident personnel request specific products they must contain all fields in standard format, used or not. When additional data is required, it can easily be collected and added to the form or summary. The form data and summaries are the minimum requirements for FUM activity documentation.

In agreement with the Fire Use Teams and FUM's this field guide is subject to annual review and revision. If a form or summary does not meet the needs of the teams and/ or FUM's, it will be changed during the annual review (at the FUM meeting).

Introduction

What is a FIRE USE MODULE?

The mission of the Fire Use Module Program is to develop and provide national self-sufficient, multi-skilled fire professionals with a primary commitment to fire use operations and planning.[1]

Fire Use Modules are composed of experienced and trained fire personnel working within a cohesive team. From highly experienced ignition specialists, to the gold standard in fire behavior observations and mapping. Module members are proficient in filling independent roles on minimally scouted fire operations in remote locations. Each module is equipped with a standard complement of equipment necessary to implement most aspects of fire planning, operations and prescribed fire implementation. Western, intermountain, and some midwest modules are also equipped with the necessary equipment to be self-sufficient in backcountry operations with very minimal logistical support from any level of incident organization.

As a national interagency resource, the modules are available throughout the fire season. Ordering is outlined in the national mobilization guide and regional mobilization guides. Each module will be staffed at a four-member minimum standard for each assignment and up to eight (NPS) or ten (USFS, FWS) depending on agency. Order modules with additional module positions as per agency above the four-member minimum.

[1] **Fire use** is the combination of wildland fire use and prescribed fire application to meet resource objectives. **Wildland fire use** is the management of naturally ignited Wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in Fire Management Plans (Wildland and Prescribed Fire Management Policy, 1998).

Fire Behavior Observations

INSTRUCTIONS & NOTES

1. **Fire Name:** Self explanatory.
2. **Date:** Self explanatory.
3. **Observers:** Primary monitor and assistant (s).
4. **Time:** 24 hr format.
5. **Location:** This should be a referenced map point, i.e., 200 yards east of Rat Point T14 R15 S32 SE/NE or junction of Hwy 20 and Cones Road. List UTM's, Lat./Long. Or local coordinate system.
6. **Elevation:** Should be in feet.
7. **Aspect:** Cardinal direction, N, NE, E, SE, S, SW, W, NW.
8. **% Slope:** Self explanatory.
9. **Fire Type:** Backing, Flanking, Head.
10. **Flame Length:** In feet or inches (note which one).
11. **Flame Zone Depth:** In feet or inches (note which one).
12. **ROS:** In chains per hour, Feet per minute, or Feet per hour. Note the units you're using.
13. **Primary Carrier:** The fuel that is carrying the current fire spread.
14. **Fuel Model:** Should be based on the Primary Carrier. Model(s) 1-13.
15. **Comments:** Any observation that may be useful for reference in the future, photos taken, public contacted, aircraft observed, size of fuels and estimates of consumption, etc.

FIRE NAME:	FIRE BEHAVIOR OBSERVATIONS	DATE:

OBSERVER(S):

TIME	LOCATION	ELEVATION	ASPECT	% SLOPE	FUEL TYPE (NFFL)	FLAME LENGTH	FLAME ZONE DEPTH	ROS	PRIMARY CARRIER	FUEL MODEL	COMMENTS (Scorch height, % consumption, spotting distance, fuel continuity and arrangement, etc.)

Fire Weather Observations

INSTRUCTIONS & NOTES

1. **Fire Name:** Self explanatory.
2. **Date:** Self explanatory.
3. **Observers:** Primary monitor and assistant (s).
4. **Time:** 24 hr format.
5. **Location:** This should be a referenced map point, i.e., 200 yards east of Cat Point T14 R15 S32 SE/NE or junction of Hwy 12 and Cook Creek Road. List UTM's, Lat./Long. Or local coordinate system.
6. **Elevation:** Should be in feet.
7. **Wind Direction:** Cardinal direction, N, NE, E, SE, S, SW, W, NW.
8. **Wind Speed:** In miles per hour. It is the AVERAGE of the monitored wind, the longer your monitoring time (up to 10 minutes), the more accurate your average. A GUST is the highest wind speed outside your average, recorded during the monitoring period.
9. **Dry Bulb:** Self explanatory.
10. **Wet Bulb:** Self explanatory.
11. **Relative Humidity:** As a percent (%).
12. **Dew Point:** Self explanatory.
13. **Aspect:** Cardinal direction, N,NE,E,SE,S,SW,W,NW.
14. **% Slope:** Self explanatory.
15. **% Cloud Cover:** Estimate of cloud cover.
16. **% Canopy Cover:** Estimate of canopy cover shading fuels.
17. **Reference Fuel Moisture:** Determine from table Appendix D.
18. **Exposed / Shaded:** Determine whether fine dead fuels ahead of the projection point are EXPOSED(<50%) or SHADED(>50%) from solar radiation. This can be due to cloud cover and/or canopy cover.
19. **Fine Dead Fuel Moisture:** As a percent.
20. **Prob. Of Ignition:** From 0-100%.
21. **Comments:** Any observation that may be useful for reference in the future, photos taken, public contacted, aircraft observed.

FIRE NAME:	INTERAGENCY FIRE USE MODULE FIRE WEATHER OBSERVATIONS	DATE:

OBSERVER(S):

TIME	LOCATION	ELEVATION	WIND DIRECTION	WIND SPEED (UNIT)	DRY BULB	WET BULB	RELATIVE HUMIDITY	DEW POINT	ASPECT	% SLOPE	% CLOUD COVER	% CANOPY COVER	1HR FUEL MOISTURE	EXPOSED / SHADED	10HR LEAD FUEL MOISTURE	INCH OF IGNITION	COMMENTS (PRECIP, LOCAL INFLUENCES, ETC.)

Smoke Observations

Instructions & Notes

Smoke observations should be taken during all fire use activities.

1. **Fire Name**: Self explanatory
2. **Observers**: Primary monitor and assistant(s)
3. **Date**: Self explanatory
4. **Time**:24 hr format
5. **Location**: This should be a referenced map point, i.e., 200 yards east of Rat Point T14 R15 S32 SE/NE or Junction of Hwy 12 and Tom Creek Road. List UTM's, Lat./ Long, or local coordinate system.
6. **Elevation:** Should be in feet.
7. **Wind Direction**: Cardinal direction, N, NE, E, SE, S, SW, W, NW.
8. **Wind Speed / Gusts:** Wind speed should be in miles per hour. (See wx obs directions for details).
9. **Approximate Altitude of Smoke Column above ground**: Should be in feet. Estimate to the best of your ability column height. Reference off of geographic features, cloud base, etc. Note whether above ground level or as an elevation.
10. **Other Observations**: List anything that might be of future reference, i.e. Smoke dispersed into Pigeon Forge. Smoke lifting to transport height with little drift. Column blowing over (shearing) directly into Bend. Closed road from1600 to 1720 hrs due to visibility.
11. **Smoke Sensitive Areas**: Any area of possible concern, complaint or potential impact. I.e. A retirement community, hospital, local residence, agency buildings, trails, roads. Almost anywhere, the key is to identify them beforehand.
12. **Forecasted Transport Winds**: Record what the forecasted and observed winds are doing. Feedback to the NWS is critical.
13. **Haines index**: Record what the Haines index or other local fire growth predictions are estimated.

FIRE NAME:	INTERAGENCY FIRE USE MODULE SMOKE OBSERVATION SHEET	DATE:

OBSERVER(S):

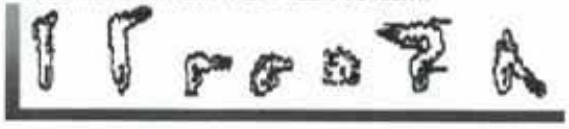
TIME	LOCATION	ELEVATION	WIND DIRECTION	WIND SPEED (GUSTS)	APPROXIMATE ALTITUDE/ ELEVATION OF SMOKE / INVERSION LAYER ABOVE GROUND	OTHER OBSERVATIONS (VISIBILITY, VOLUME, COLOR, PLUME TYPE, INVERSION STATUS, VISIBILITY TO SIGHTED DISTANCE, SMOKE SENSITIVE AREAS)

SMOKE SENSITIVE AREAS:

FORECASTED TRANSPORT WINDS:

HAINES INDEX:

COLUMN FORMATION TYPES 1-7 LEFT TO RIGHT:



	FIRE BEHAVIOR OBSERVATIONS SUMMARY SHEET	**INTERAGENCY FIRE USE MODULES**

Fire Name:_____ Fire #_____

Management Unit:_____ Date:_____ Time:_____

Current Fire Size:_____ Observation Location (map grid/elev.etc.):_____

Attach current map indicating active fire perimeter, spread direction and other significant information.

Fuel Model/Vegetation Type (of active area):_____

Fire Activity: Creeping, Running, Torching, or Crowning:_____

- Rate of Spread_____chh Type of spread Head Flanking Backing Average (select any that apply)
- Perimeter growth_____chains, direction_____Growth Rate (chains/time)_____
- Percent of perimeter actively burning?_____Location(s)_____
- Max temp/time____Min temp/time____ Min RH/time____ Max RH/time
- Wind: Max sustained dir/time_____
- Smoke: (describe column: color, shape, etc)_____
- Distance to MMA, Trigger Points, other values at risk (note on attached map also)_____

Other notes (i.e. influencing factors – topography, shading, etc., potential fuel model changes, resistance to control efforts, structures (if applicable), more on observations above.)

Prepared by:_____ Date_____
Name, Module, and Qualification

Reviewed by:_____ Date_____
Name, Module, and Qualification

Attached Products: (check)

- ☐ FIRE BEHAVIOR OBSERVATIONS
- ☐ SMOKE OBSERVATIONS
- ☐ SPOT WEATHER FORECAST REQUEST
- ☐ FIRE PERIMETER/ AREA MAP
- ☐ FIRE WEATHER OBSERVATIONS
- ☐ FUEL MOISTURE SAMPLING SHEET
- ☐ ICS 214 UNIT LOG
- ☐ PHOTO LOG

Fuel Moisture Sampling

Fuel moisture sampling should be accomplished using accepted and local standards. Fuel moisture has a direct correlation with fire spread and consumption. Sampling procedures within the below listed publications are some of the accepted sources for protocols.

Publications that contain Fuel Moisture Sampling Information:

Measuring Fuel Moisture Content in Alaska: Standard Methods and Procedures
Rodney A. Norum and Melanie Miller, 1984.

Measuring Moisture Content in Living Chaparral: a field user's manual
Clive M. Countryman and William A. Dean, 1979

Gain and Loss of Moisture in Large Forest Fuels
Arthur P.Brackebusch, 1975

Live Fuel Moisture Report (Report Recommendation A8), Interagency Management Review Team
South Canyon Fire.
James M. Saveland, Ph.D.

Additional Notes: Consistency is the key to success with Fuel Moisture Sampling. The best use of Fuel Moisture data will be attained as fire behavior observations and Fuel Moisture Observations are compared!

FIRE NAME:	INTERAGENCY FIRE USE MODULE FUEL MOISTURE SAMPLING SHEET	DATE:

OBSERVER(S):

COLLECTED BY: _____
DATE COLLECTED: _____
TIME COLLECTED: _____

WEIGHED BY: _____
DATE INOVEN: _____
TIME IN OVEN: _____

DATE OUT OF OVEN: _____
TIME OUT OF OVEN: _____
WEIGHED BY: _____

SPECIES / MATERIAL	ELEV.	ASPECT	LOCATION	CAN #	TARE	WET WT (g)	DRY WT (g)	% MOIST. *	COMMENTS

WEATHER OBS:
DEW POINT: _____
CLOUD TYPE: _____
WIND DIRECTION/MPH: _____/_____

DRY BULB: _____
HUMIDITY: _____
10 HOUR FMTL STICK: _____
GUST DIRECTION/MPH: _____/_____

WET BULB: _____
% CLOUD COVER: _____
% CANOPY COVER: _____
TIME: _____

*FUEL MOISTURE CALCULATION FORMULA:

$$\left[\frac{(WET - DRY)}{DRY}\right] X\ 100$$

Revised: 07.17.03

Spot Weather Forecast

Instructions & Notes

Spot Weather Forecasts should be requested for fires that will exceed initial attack, have potential for extreme fire behavior, or are located in areas where Red Flag Warnings or Fire Weather Watches have been issued. This form is primarily for field use documentation of weather observations and/or forecasts; whenever possible, a copy of the actual Fire Weather Forecast should be used for operational briefings and/or included in the fire documentation.

1. **Name of Fire/Incident:** Use Incident or project name.
2. **Control Agency:** Agency with primary responsibility for managing the incident.
3. **Request Made:** Fill in time and date
4. **Location:** Use an on-site legal description specific to the nearest ¼ section.
5. **Drainage Name:** Use the closest drainage name or landmark from a topographical map.
6. **Exposure:** Use one of the 8 cardinal points (N, SE, NW, etc.) to designate general aspect.
7. **Size of project:** In acres.
8. **Elevation:** In feet.
9. **Fuel Type:** Use a fuel model name or description.
10. **Project On:** Project may be on ground or crowning.
11. **Weather Conditions at Project or from Nearby RAWS Stations:** In the place column, put On-site (which refers to the legal description used in number 4); if the observations are taken off-site, specify the Township, Range, and Section to the nearest ¼ section or the location of the RAWS used. In the elevation column, put the actual elevation for the observations (may or may not be the same as in number 8).
12. **Send Forecast To:** Specify how the forecast will be broadcast or sent, especially if it differs from the normal radio relay or faxing procedures (i.e. having copies faxed to mobile units, office, or

stations), and also the name of the contact who will be receiving the request (may differ from the person making the forecast).

13. **Forecast and Outlook:** Document name of forecaster and the office forecast originated from.
14. **Forecast Received:** Document name of person receiving forecast, date, time, and location and received (to verify or update information in Number 12).

Additional Notes:

As NOAA assumes responsibility for fire weather forecasting, a few items should be noted. First, all offices will be using the online spot weather forecast request. This should be standardized between all their offices. They (and your dispatcher) really appreciate if you can provide them with the 7.5 min. USGS quad name, Legal, and the Lat. /Long i.e., 37.86888N 119.67822W. This makes the process much easier if done before you request the spot. For the online version, use the remarks section to provide feedback on previous spots, and as a method of communication between the field and the forecaster.

Second, under the remarks section (or column in number 11), put the estimated ignition time for RX projects. For RX projects, fire weather forecasters can work with you ahead of time and either do some "practice" forecasts or provide you with weather information for planning. Get the forecasters on board and familiar as early as possible.

For better service, do not send a request just prior to RX ignition (turn-around time is typically 1 to 2 hours). Most fire weather forecasters work early shifts to prepare for the workday, and usually leave anywhere from 16:00 to 17:00.

Spot Weather Forecast

If the fire weather forecaster does not here from you, they assume the forecast was accurate. If the forecast does not match up with what is actually occurring, let the fire weather forecaster know.

Feedback is crucial for improving the forecast accuracy. If at any time you do not understand what the forecast is telling you, or you have questions about its content for whatever reason, do not hesitate to call the fire weather forecaster and discuss the matter.

Spot Weather Forecast

WS FORM D-1
(12-84)
Pres. By WSOM D-41

U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL WEATHER SERVICE

FIRE WEATHER SPECIAL FORECAST REQUEST

I – REQUESTING AGENCY WILL FURNISH:

1. NAME OF FIRE OR OTHER PROJECT	2. CONTROL AGENCY	3. REQUEST MADE TIME	DATE

4. LOCATION (By ½ Sec-Sec-Twp-Range)	5. DRAINAGE NAME	6. EXPOSURE (NE, E, SE, etc.)

7. SIZE OF PROJECT (Acres)	8. ELEVATION* TOP	BOTTOM	9. FUEL TYPE	10. PROJECT ON GROUND / CROWNING

II. WEATHER CONDITIONS AT PROJECT OR FROM NEARBY STATIONS

PLACE	ELEVATION	OB TIME	WIND DIR. VEL. 20 FT	WIND DIR. VEL. EYE LEVEL	TEMP. DRY	TEMP. WET	RH	DP	REMARKS (Indicate rain, thunderstorms, etc. Also wind conditions and 10ths of cloud cover)

12. SEND FORECAST TO:	PLACE	VIA	ATTN:

II. FIRE WEATHER FORECASTER WILL FURNISH:

13. FORECAST AND OUTLOOK:
(SPECIFY Wind – 20 foot or Eye Level)

TIME AND DATE: _____

Synopsis:

Burn Period	Sky Cover	Temperature	Humidity	Wind Eye Level	Wind 20-Foot	Indices
☐ Today (sunrise to dusk) ☐ This Afternoon (noon until dusk) ☐ This evening (1600 until dusk) ☐ Tonight (sunset until sunrise)	☐ Mostly Sunny/Clear ☐ Fair ☐ Partly Cloudy ☐ Mostly Cloudy ☐ Cloudy ☐ Variable Clouds	_____ °F ☐ High ☐ Low ☐ Range	_____ % ☐ Maximum ☐ Minimum ☐ Range	☐ Upslope ☐ Downslope Direction: _____ Velocity: _____ Gusts _____	☐ Upslope ☐ Downslope Direction: _____ Velocity: _____ Gusts _____	Haines: LAL: EI: CI:
☐ Today (sunrise to dusk) ☐ This Afternoon (noon until dusk) ☐ This evening (1600 until dusk) ☐ Tonight (sunset until sunrise)	☐ Mostly Sunny/Clear ☐ Fair ☐ Partly Cloudy ☐ Mostly Cloudy ☐ Cloudy ☐ Variable Clouds	_____ °F ☐ High ☐ Low ☐ Range	_____ % ☐ Maximum ☐ Minimum Range	☐ Upslope ☐ Downslope Direction: _____ Velocity: _____ Gusts _____	☐ Upslope ☐ Downslope Direction: _____ Velocity: _____ Gusts _____	Haines: LAL: EI: CI:
Outlook For (Date): _____	☐ Mostly Sunny/Clear ☐ Fair ☐ Partly Cloudy ☐ Mostly Cloudy ☐ Cloudy ☐ Variable Clouds	_____ °F ☐ High ☐ Low ☐ Range	_____ % ☐ Maximum ☐ Minimum Range	☐ Upslope ☐ Downslope Direction: _____ Velocity: _____ Gusts _____	☐ Upslope ☐ Downslope Direction: _____ Velocity: _____ Gusts _____	Haines: LAL: EI: CI:

NAME OF FIRE WEATHER FORECASTER	FIRE WEATHER OFFICE

III – REQUESTING AGENCY WILL COMPLETE UPON RECEIPT OF FORECAST

IV – FORECAST RECEIVED:	TIME	DATE	NAME

Unit Log

UNIT LOG	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. UNIT NAME/DESIGNATOR	5. UNIT LEADER (NAME AND POSITION)	6. OPERATIONAL PERIOD	

7. PERSONNEL ROSTER ASSIGNED

NAME	ICS POSITION	HOME BASE

8. ACTIVITY LOG (CONTINUED ON REVERSE)

TIME	MAJOR EVENTS

Unit Log

TIME	MAJOR EVENTS
ICS-214 05-94	9. PREPARED BY (NAME AND POSITION)

Notes

Notes

Appendices

A. Relative Humidity – Dew Point Tables
B. Fuel Model Key
C. Fuel Model Descriptions
D. Fine Dead Fuel Moisture Tables
E. Live Fuel Moisture Estimates
F. Slope Calculation
G. Wind Adjustment Factors

Elevations between 0 and 500 feet

Dry Bulb Temperatures 41 to 60 F
(Read Across)

Wet Bulb Temperatures 28 to 59 F
(Read Down)

Wet Bulb Temperatures 23 to 40 F

DP RH | DP RH

Dry Bulb Temperatures

Elevations between 0 and 500 feet

Wet Bulb Temperatures

40 to 79 F

(Read Down)

Dry Bulb Temperatures

61 to 80 F

(Read Across)

	40	41	42	43	44	45	46	46	48	49	50	51	52	53	54	55	56	57	58	59	60
61	-21 / 2	-4 / 7	5 / 11	12 / 16	18 / 19	23 / 23	27 / 27	30 / 31	34 / 36	36 / 40	39 / 44	42 / 49	44 / 54	46 / 59	48 / 63	50 / 68	52 / 72	54 / 78	56 / 84	58 / 89	59 / 94
62	-44 / 1	-12 / 6	1 / 8	9 / 12	15 / 16	20 / 20	25 / 24	29 / 28	32 / 32	35 / 37	38 / 41	41 / 45	43 / 50	45 / 54	48 / 59	50 / 64	52 / 69	54 / 74	55 / 79	57 / 84	59 / 89
63		-23 / 2	-7 / 6	3 / 10	12 / 14	18 / 17	23 / 21	27 / 25	31 / 29	34 / 32	37 / 36	39 / 42	42 / 46	44 / 51	47 / 55	49 / 60	51 / 64	53 / 69	55 / 74	56 / 79	58 / 84
64		-50 / 1	-11 / 4	0 / 8	9 / 11	16 / 15	21 / 19	25 / 22	29 / 26	32 / 30	35 / 34	38 / 39	41 / 43	43 / 47	46 / 51	48 / 56	50 / 60	52 / 65	54 / 70	56 / 74	57 / 79
65			-23 / 2	-5 / 6	5 / 9	12 / 11	18 / 16	23 / 20	27 / 24	31 / 28	34 / 31	37 / 35	40 / 39	42 / 44	45 / 48	47 / 52	49 / 56	51 / 61	53 / 65	55 / 70	57 / 75
66			-57	-10 / 4	0 / 7	8 / 10	15 / 14	21 / 18	25 / 21	29 / 25	33 / 29	36 / 32	39 / 36	41 / 40	44 / 44	46 / 49	48 / 53	50 / 57	52 / 62	54 / 66	56 / 71
67				-26 / 2	-6 / 5	5 / 8	12 / 12	18 / 15	23 / 19	27 / 23	31 / 26	34 / 30	37 / 34	40 / 37	43 / 41	45 / 45	47 / 49	50 / 54	52 / 58	54 / 62	55 / 66
68					-18 / 3	0 / 7	9 / 10	16 / 13	21 / 17	25 / 20	29 / 24	33 / 27	36 / 31	39 / 34	42 / 38	44 / 42	47 / 46	49 / 50	51 / 55	53 / 59	55 / 63
69						-26 / 2	-6 / 5	5 / 9	13 / 11	19 / 14	23 / 18	28 / 21	31 / 25	35 / 28	38 / 32	41 / 35	43 / 39	44 / 43	46 / 47	50 / 51	52 / 55
70							-14 / 3	0 / 6	9 / 9	16 / 12	21 / 16	25 / 19	30 / 22	33 / 26	36 / 29	39 / 33	42 / 36	45 / 40	47 / 44	49 / 48	51 / 51
71							-26 / 2	-5 / 5	5 / 8	13 / 11	19 / 14	24 / 17	28 / 20	32 / 23	35 / 27	38 / 30	41 / 34	44 / 37	46 / 41	48 / 45	51 / 48
72								-10 / 3	1 / 6	10 / 9	16 / 12	22 / 15	26 / 18	30 / 21	34 / 24	37 / 28	40 / 31	43 / 35	45 / 39	47 / 42	50 / 46
73								-26 / 3	-5 / 4	6 / 7	13 / 10	19 / 13	24 / 16	29 / 19	32 / 22	36 / 25	39 / 29	41 / 32	44 / 35	47 / 39	49 / 42
74									-10 / 1	1 / 5	10 / 8	17 / 11	22 / 14	27 / 17	31 / 20	34 / 23	37 / 27	40 / 30	43 / 33	46 / 37	48 / 40
75									-25 / 2	-4 / 4	6 / 7	14 / 10	20 / 12	25 / 15	29 / 18	33 / 21	34 / 24	38 / 27	42 / 31	45 / 34	47 / 37
76									-57	-12 / 3	2 / 5	8 / 8	17 / 11	23 / 14	27 / 16	31 / 19	35 / 22	38 / 25	41 / 28	44 / 31	46 / 35
77										-23 / 2	-3 / 4	7 / 7	15 / 9	21 / 12	25 / 15	30 / 18	33 / 20	37 / 23	40 / 26	43 / 29	46 / 32
78										-49	-11 / 3	3 / 5	12 / 8	18 / 10	23 / 13	28 / 16	32 / 19	35 / 21	39 / 24	41 / 27	44 / 30
79											-21 / 2	-2 / 4	8 / 6	15 / 9	21 / 12	26 / 14	30 / 17	34 / 20	37 / 22	40 / 25	43 / 28
80											-43	-9 / 3	4 / 5	12 / 8	19 / 10	24 / 13	29 / 15	33 / 18	36 / 21	39 / 23	42 / 26

	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
61																			
62	60 / 95																		
63	60 / 99	61 / 95																	
64	59 / 94	61 / 89	62 / 95																
65	58 / 89	60 / 85	62 / 90	63 / 95															
66	58 / 76	60 / 80	61 / 85	63 / 90	64 / 95														
67	57 / 71	59 / 76	61 / 80	62 / 85	64 / 90	65 / 95													
68	57 / 67	59 / 71	60 / 76	62 / 81	63 / 85	65 / 91	67 / 95												
69	56 / 63	58 / 67	60 / 72	61 / 76	63 / 81	64 / 85	66 / 90	68 / 95											
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71	55 / 56	56 / 60	58 / 64	60 / 68	62 / 73	63 / 77	65 / 81	67 / 86	68 / 90	70 / 95									
72	54 / 53	56 / 57	58 / 61	59 / 65	61 / 69	63 / 73	64 / 77	66 / 82	68 / 85	69 / 91	71 / 95								
73	53 / 50	55 / 53	57 / 57	59 / 61	61 / 65	62 / 69	64 / 73	66 / 77	67 / 82	69 / 84	70 / 91	72 / 95							
74	52 / 47	54 / 50	56 / 54	58 / 58	60 / 62	62 / 66	63 / 70	65 / 74	67 / 78	68 / 82	70 / 84	71 / 91	73 / 95						
75	52 / 44	54 / 47	56 / 51	58 / 55	59 / 59	61 / 62	63 / 66	65 / 70	66 / 74	68 / 78	69 / 82	71 / 87	72 / 91	74 / 95					
76	51 / 41	53 / 45	55 / 48	57 / 52	59 / 55	61 / 59	62 / 63	64 / 66	66 / 70	67 / 74	69 / 78	70 / 82	72 / 87	73 / 91	75 / 95				
77	50 / 38	52 / 42	54 / 45	56 / 49	58 / 52	60 / 54	62 / 59	63 / 63	65 / 67	67 / 71	68 / 75	70 / 79	71 / 83	73 / 87	74 / 91	76 / 94			
78	49 / 36	51 / 39	53 / 43	56 / 46	57 / 49	59 / 53	61 / 56	62 / 60	65 / 63	66 / 67	68 / 71	69 / 75	71 / 79	72 / 83	74 / 87	75 / 91	77 / 94		
79	48 / 34	51 / 37	53 / 40	55 / 43	57 / 47	59 / 50	61 / 53	62 / 57	64 / 60	66 / 64	67 / 68	69 / 71	70 / 75	72 / 79	73 / 83	75 / 87	76 / 91	78 / 94	
80	47 / 32	50 / 35	52 / 38	54 / 41	56 / 44	58 / 47	60 / 50	62 / 54	64 / 57	65 / 61	67 / 64	68 / 68	70 / 72	72 / 75	73 / 79	74 / 82	76 / 87	77 / 91	79 / 94

DP RH | DP RH

Elevations between 0 and 500 feet

Wet Bulb Temperatures

50 to 90 F

(Read Down)

Dry Bulb Temperatures

81 to 100 F

(Read Across)

DP	DP
RH	RH

	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	-19 / 2	-1 / 4	8 / 6	16 / 9	22 / 11	27 / 14	31 / 16	35 / 19	38 / 21	41 / 24	44 / 27	46 / 30	49 / 33	51 / 35	53 / 38	55 / 42	57 / 45	59 / 48	61 / 51	63 / 54	65 / 58	66 / 61	68 / 65	70 / 69	71 / 72	73 / 76	74 / 80	76 / 83	77 / 87	78 / 92	80 / 96
82	-37 / 1	-7 / 3	5 / 5	13 / 7	20 / 10	25 / 12	29 / 15	33 / 17	37 / 20	40 / 22	43 / 25	45 / 28	48 / 31	50 / 33	52 / 36	55 / 39	57 / 42	59 / 45	61 / 48	62 / 52	64 / 55	66 / 59	68 / 62	69 / 66	71 / 69	72 / 73	74 / 76	75 / 80	77 / 84	79 / 88	79 / 95
83		-16 / 2	0 / 4	10 / 6	17 / 9	23 / 11	28 / 13	32 / 16	36 / 18	39 / 21	42 / 23	44 / 26	47 / 28	50 / 31	52 / 34	54 / 37	56 / 40	58 / 43	60 / 46	62 / 49	64 / 52	65 / 55	67 / 59	69 / 62	70 / 65	72 / 69	73 / 73	75 / 76	76 / 80	78 / 84	79 / 88
84		-28 / 1	-6 / 3	6 / 5	14 / 7	21 / 10	26 / 12	30 / 14	34 / 17	37 / 19	41 / 22	43 / 24	46 / 27	49 / 29	51 / 32	53 / 35	55 / 38	57 / 41	59 / 43	61 / 46	63 / 50	65 / 53	67 / 56	68 / 59	70 / 63	71 / 66	73 / 69	74 / 73	76 / 76	77 / 80	79 / 84
85			-14 / 2	2 / 4	11 / 6	18 / 8	24 / 11	28 / 13	33 / 15	36 / 18	39 / 20	42 / 22	45 / 25	48 / 28	50 / 30	53 / 33	55 / 36	57 / 39	59 / 41	61 / 44	63 / 47	64 / 50	66 / 53	68 / 56	69 / 60	71 / 63	72 / 66	74 / 70	75 / 73	77 / 77	78 / 80
86			-28 / 1	-4 / 3	6 / 5	15 / 7	22 / 9	27 / 12	31 / 14	35 / 16	38 / 18	41 / 21	44 / 23	47 / 26	49 / 28	52 / 31	54 / 34	56 / 36	58 / 39	60 / 42	62 / 45	64 / 48	66 / 51	67 / 54	69 / 57	70 / 60	72 / 63	74 / 67	75 / 70	77 / 73	78 / 77
87				-11 / 2	3 / 4	12 / 6	19 / 8	25 / 10	29 / 13	33 / 15	37 / 17	40 / 19	43 / 22	44 / 24	49 / 27	51 / 29	53 / 32	55 / 34	58 / 37	59 / 40	61 / 42	63 / 45	65 / 48	67 / 51	68 / 54	70 / 57	72 / 60	73 / 64	75 / 67	76 / 70	78 / 74
88				-22 / 1	-2 / 3	9 / 5	17 / 7	23 / 9	28 / 11	32 / 13	36 / 16	39 / 18	42 / 20	45 / 22	48 / 25	50 / 27	53 / 30	55 / 32	57 / 35	59 / 38	61 / 40	63 / 43	64 / 46	66 / 49	68 / 52	70 / 55	71 / 58	73 / 61	74 / 64	76 / 67	77 / 71
89				-45 / 1	-9 / 2	5 / 4	14 / 6	20 / 8	26 / 10	30 / 12	34 / 14	38 / 17	41 / 19	44 / 21	47 / 23	49 / 26	52 / 28	54 / 30	56 / 33	58 / 36	60 / 39	62 / 41	64 / 44	66 / 46	67 / 49	69 / 52	71 / 55	72 / 58	74 / 61	75 / 64	77 / 68
90					-17 / 1	0 / 3	11 / 5	18 / 7	24 / 9	29 / 11	33 / 13	37 / 15	40 / 17	43 / 20	44 / 22	48 / 24	51 / 26	53 / 29	55 / 31	58 / 34	60 / 36	62 / 39	63 / 41	65 / 44	67 / 47	69 / 50	70 / 53	72 / 55	73 / 58	75 / 61	76 / 64
91					-34 / 1	-5 / 2	7 / 4	15 / 6	22 / 8	27 / 10	31 / 12	35 / 14	39 / 16	42 / 19	45 / 21	48 / 23	50 / 25	53 / 27	55 / 29	57 / 32	59 / 34	61 / 37	63 / 39	65 / 42	66 / 45	68 / 47	70 / 50	71 / 53	73 / 56	75 / 59	76 / 62
92						-13 / 2	3 / 3	12 / 5	18 / 7	25 / 9	30 / 11	34 / 13	37 / 15	41 / 17	44 / 19	47 / 21	49 / 23	52 / 26	54 / 28	56 / 30	58 / 33	60 / 35	62 / 37	64 / 40	66 / 43	68 / 45	69 / 48	71 / 51	73 / 53	74 / 56	76 / 59
93						-24 / 1	-3 / 3	9 / 4	17 / 6	23 / 8	28 / 10	32 / 12	36 / 14	40 / 16	43 / 18	46 / 20	48 / 22	51 / 24	53 / 26	56 / 29	58 / 31	60 / 33	62 / 36	64 / 38	65 / 41	67 / 43	69 / 46	71 / 48	72 / 51	74 / 54	75 / 57
94							-10 / 2	5 / 3	14 / 5	21 / 7	26 / 9	31 / 11	35 / 13	38 / 14	42 / 16	45 / 18	48 / 20	50 / 22	53 / 25	55 / 27	57 / 29	59 / 31	61 / 34	63 / 36	65 / 39	67 / 41	68 / 44	70 / 46	72 / 49	73 / 52	75 / 54
95							-20 / 1	0 / 3	11 / 4	19 / 6	24 / 8	29 / 10	33 / 12	37 / 14	41 / 16	44 / 17	47 / 19	49 / 21	52 / 23	54 / 25	56 / 28	58 / 30	61 / 32	63 / 34	64 / 37	66 / 39	68 / 42	70 / 44	71 / 47	73 / 49	75 / 52
96								-30 / 1	-6 / 2	7 / 4	16 / 5	22 / 7	27 / 9	32 / 10	36 / 12	39 / 14	43 / 16	46 / 18	48 / 20	51 / 22	53 / 24	56 / 26	58 / 28	60 / 30	62 / 33	64 / 35	66 / 37	68 / 40	69 / 42	71 / 45	73 / 47	74 / 50
97									-14 / 1	2 / 3	12 / 4	20 / 6	25 / 8	30 / 10	35 / 11	38 / 13	42 / 15	45 / 17	48 / 19	50 / 21	53 / 23	55 / 25	57 / 27	59 / 29	61 / 31	63 / 33	65 / 36	67 / 38	69 / 40	71 / 43	72 / 45	74 / 48
98									-29 / 1	-3 / 2	9 / 4	17 / 5	23 / 7	29 / 9	33 / 10	37 / 12	40 / 14	44 / 16	47 / 18	49 / 19	52 / 21	54 / 23	57 / 25	59 / 27	61 / 30	63 / 32	65 / 34	67 / 36	68 / 38	70 / 41	72 / 43	73 / 46
99										-10 / 1	5 / 2	14 / 3	21 / 5	27 / 6	32 / 8	36 / 9	39 / 11	43 / 13	46 / 15	48 / 16	51 / 18	54 / 20	56 / 22	58 / 24	60 / 26	62 / 29	64 / 31	66 / 33	68 / 35	70 / 38	71 / 41	73 / 44
100											-20 / 1	0 / 2	11 / 4	19 / 5	25 / 7	30 / 9	34 / 10	38 / 12	42 / 14	45 / 15	48 / 17	50 / 19	53 / 21	55 / 23	57 / 25	60 / 27	62 / 29	64 / 31	66 / 33	67 / 35	69 / 37	71 / 39

	1	82	83	84	85	86	87	88	89	90	91	92	93	94	95
81															
82	81 / 34														
83	80 / 82	83 / 86													
84	80 / 81	83 / 85	84 / 88												
85	80 / 81	82 / 84	85 / 87												
86	79 / 81	82 / 83	85 / 86	86 / 90											
87	79 / 80	82 / 83	84 / 85	86 / 88	87 / 91										
88	78 / 80	81 / 83	84 / 85	85 / 87	87 / 89	88 / 92									
89	78 / 80	81 / 82	84 / 85	85 / 86	86 / 88	88 / 91	89 / 93								
90	78 / 79	81 / 82	84 / 85	85 / 86	87 / 88	89 / 90	90 / 92	91 / 94							
91	78 / 79	80 / 82	83 / 85	86 / 86	87 / 88	89 / 90	90 / 91	91 / 93	92 / 95						
92	77 / 79	80 / 82	83 / 84	86 / 86	87 / 88	89 / 89	91 / 91	92 / 93	93 / 94	94 / 95					
93	77 / 78	80 / 81	83 / 84	85 / 86	87 / 88	89 / 89	91 / 92	92 / 93	93 / 94	94 / 95	95 / 96				
94	76 / 78	79 / 81	82 / 84	85 / 86	86 / 88	88 / 89	90 / 91	92 / 93	93 / 94	94 / 95	95 / 96	96 / 97			
95	76 / 78	79 / 81	82 / 83	85 / 86	87 / 88	89 / 90	91 / 91	92 / 93	93 / 94	94 / 95	95 / 96	96 / 97	97 / 98		
96	76 / 77	79 / 80	82 / 83	84 / 86	87 / 88	89 / 90	91 / 92	92 / 93	93 / 94	94 / 95	95 / 96	96 / 97	97 / 98	98 / 99	
97	75 / 77	78 / 80	81 / 83	84 / 85	87 / 88	89 / 89	91 / 92	92 / 93	93 / 94	94 / 95	95 / 96	96 / 97	97 / 98	98 / 99	99 / 100
98	75 / 77	78 / 80	81 / 82	84 / 85	87 / 88	89 / 89	91 / 92	92 / 93	93 / 94	94 / 95	95 / 96	96 / 97	97 / 98	98 / 99	99 / 100
99	75 / 76	78 / 79	81 / 82	84 / 85	86 / 88	89 / 90	91 / 92	92 / 93	93 / 94	94 / 95	95 / 96	96 / 97	97 / 98	98 / 99	99 / 100
100	74 / 76	77 / 79	80 / 81	83 / 85	86 / 87	88 / 89	90 / 91	92 / 93	93 / 94	94 / 95	95 / 96	96 / 97	97 / 98	98 / 99	99 / 100

Elevations between 0 and 500 feet

Wet Bulb Temperatures, 58 to 95 F

(Read Down)

Dry Bulb Temperatures 101 to 119 F (Read Across)	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
101	-40	-6	8	16	23	28	33	37	40	44	47	49	52	54	57	59	61	63	65	67	69	70	72	74	75	77	79	80	81	83	84	86	87	88	90	91	92	94
		2	3	5	6	8	9	11	13	14	16	18	20	21	23	25	27	29	31	33	35	38	40	42	45	47	49	52	54	57	59	62	65	68	71	74	77	80
102		-14	3	13	21	26	31	36	39	43	46	49	51	54	56	58	61	63	65	66	68	70	72	73	75	77	78	80	81	83	84	86	87	88	90	91	92	93
		1	3	4	5	7	9	10	12	13	15	17	18	20	22	24	26	28	30	32	34	36	38	40	43	45	47	50	52	55	57	60	63	65	68	71	74	77
103		-26	-2	10	18	24	30	34	38	42	45	48	50	53	55	58	60	62	64	66	68	70	71	73	75	76	78	79	81	82	84	85	87	88	89	91	92	93
		1	2	3	5	6	8	9	11	12	14	16	17	19	21	23	25	26	28	30	32	34	37	39	41	43	45	48	50	53	55	58	60	63	66	68	71	74
104			-8	6	15	22	28	33	37	40	44	47	50	52	55	57	59	61	63	65	67	69	71	73	74	76	77	79	80	82	83	85	86	88	89	90	92	93
			1	3	4	6	7	9	10	12	13	15	16	18	20	22	23	25	27	29	31	33	35	37	39	41	44	46	48	51	53	55	58	61	63	66	69	72
105			-18	2	12	20	26	31	35	39	43	46	49	51	55	56	59	61	63	65	67	69	70	72	74	75	77	79	80	82	83	85	86	87	89	90	91	93
			1	2	4	5	6	8	9	11	12	14	15	17	19	20	22	24	26	28	30	31	33	35	38	40	42	44	46	49	51	53	56	58	61	63	66	69
106				-34	-4	9	18	24	29	34	38	42	45	48	51	53	56	58	60	62	64	66	68	70	72	73	75	77	78	80	81	83	84	86	87	88	90	91	92
					2	3	4	6	7	8	10	11	13	14	16	18	19	21	23	25	26	28	30	32	34	36	38	40	42	44	47	49	51	54	56	59	61	64	66
107					-11	5	15	22	28	33	37	41	44	47	50	53	55	57	60	62	64	66	68	70	71	73	75	76	78	79	81	83	84	85	87	88	90	91	92
					1	2	4	5	6	8	9	11	12	14	15	17	18	20	22	23	25	27	29	31	32	34	36	38	41	43	45	47	49	52	54	56	59	61	64
108					-22	0	12	20	26	31	35	39	43	46	49	52	54	57	59	61	63	65	67	69	71	73	74	76	78	79	81	82	84	85	87	88	89	91	92
					1	2	3	4	6	7	8	10	11	13	14	16	17	18	21	22	24	25	27	29	31	33	35	37	39	41	43	45	47	50	52	54	57	59	62
109					-46	-6	8	17	24	29	34	38	42	45	48	51	54	56	58	61	63	65	67	69	70	72	74	76	77	79	80	82	83	85	86	88	89	90	92
						1	3	4	5	6	8	9	11	12	13	15	16	18	20	21	23	24	26	28	30	32	33	35	37	39	41	43	46	48	50	52	55	57	60
110						-14	4	14	22	28	33	37	41	44	47	50	53	55	58	60	62	64	66	68	70	72	74	75	77	78	80	82	83	85	86	87	89	90	91
						1	2	3	5	6	7	8	10	11	13	14	15	17	19	20	22	23	25	27	28	30	32	34	36	38	40	42	44	46	48	50	53	55	57
111							-25	-1	11	19	26	31	36	39	43	46	49	52	55	57	59	62	64	66	68	70	71	73	75	76	78	80	81	83	84	86	87	89	90	91
							1	3	4	5	6	8	9	10	12	13	15	16	18	19	21	22	24	26	27	29	31	33	34	36	38	40	42	44	46	48	51	53	55
112								-7	8	17	24	29	34	38	42	45	48	51	54	56	59	61	63	65	67	69	71	73	74	76	78	79	81	82	84	85	87	88	90	91
								1	2	3	5	6	7	8	10	11	12	14	15	17	18	20	21	23	24	26	28	29	31	33	35	37	39	41	43	45	47	49	51	53
113								-16	3	14	22	28	33	37	41	44	48	50	53	56	58	60	63	65	67	68	70	72	74	76	77	79	81	82	84	85	87	88	89	91
								1	2	3	4	5	7	8	9	10	12	13	14	16	17	19	20	22	23	25	27	28	30	32	33	35	37	39	41	43	45	47	49	51
114								-31	-2	11	19	26	31	36	40	43	47	50	52	55	57	60	62	64	66	68	70	72	74	75	77	79	80	82	83	85	86	88	89	91
									1	2	4	5	6	7	9	10	11	12	14	15	16	18	19	21	22	24	25	27	29	30	32	34	36	38	39	41	43	45	47	50
115									-9	7	17	24	29	34	39	42	46	49	52	54	57	59	61	64	66	68	70	71	73	75	77	78	80	81	83	85	86	87	89	90
									1	2	3	4	5	7	8	9	10	12	13	14	16	17	18	20	21	23	24	26	28	29	31	33	34	36	38	40	42	44	46	48
116									-18	3	14	22	28	33	37	41	45	48	51	54	56	59	61	63	65	67	69	71	73	75	76	78	80	81	83	84	86	87	89	90
									1	2	3	4	5	6	7	8	10	11	12	13	15	16	17	19	20	22	23	25	26	28	30	31	33	35	37	38	40	42	44	46
117									-35	-3	11	19	26	31	36	40	44	47	50	53	55	58	60	63	65	67	69	71	72	74	76	78	79	81	82	84	85	87	88	90
										1	2	3	4	6	7	8	9	10	11	13	14	15	17	18	19	21	22	24	25	27	29	30	32	33	35	37	39	41	43	44
118										-9	7	17	24	30	35	39	43	46	49	52	55	57	60	62	64	66	68	70	72	74	76	77	79	80	82	84	85	87	88	89
										1	2	3	4	5	6	7	8	10	11	12	13	15	16	17	18	20	21	23	24	26	27	29	31	32	34	36	37	39	41	43
119										-19	2	14	22	28	33	38	42	45	48	51	54	57	59	61	64	66	68	70	72	73	75	77	79	80	82	83	85	86	88	89
										1	1	2	4	5	6	7	8	9	10	11	12	14	15	16	18	19	20	22	23	25	26	28	29	31	33	34	36	38	40	41

DP RH | DP RH

Elevations between 501 and 1,900 feet

Wet Bulb Temperature
28 to 59 F
(Read Down)

Dry Bulb Temperatures
41 to 60 F
(Read Across)

DP RH | DP RH

Wet Bulb Temperatures

	21	22	23	24	25	26	27	28	29	30
31	-27 / 1	-19 / 10	-9 / 20	2 / 29	9 / 38	14 / 46	18 / 59	22 / 68	25 / 78	28 / 85
32		-34 / 4	-13 / 13	-3 / 22	5 / 31	11 / 40	15 / 50	20 / 60	23 / 69	26 / 78
33			-25 / 7	-9 / 15	0 / 24	7 / 33	13 / 42	17 / 52	21 / 61	25 / 71
34			-38 / 1	-18 / 9	-5 / 18	3 / 26	9 / 35	14 / 44	19 / 53	23 / 62
35				-34 / 4	-13 / 12	-2 / 20	4 / 29	11 / 37	16 / 46	20 / 55
36					-14 / 6	-3 / 14	1 / 22	8 / 31	14 / 39	18 / 48
37					-50 / 1	-17 / 9	-4 / 17	4 / 25	10 / 33	15 / 41
38						-31 / 4	-11 / 11	0 / 19	7 / 27	12 / 35
39							-23 / 7	-6 / 14	3 / 21	9 / 29
40							-42 / 2	-14 / 9	-2 / 16	6 / 23

	28	29	30	31	32	33	34	35	36	37	38	39	40
41	-26 / 5	-9 / 11	1 / 18	8 / 24	14 / 33	18 / 40	22 / 47	26 / 54	29 / 61	32 / 69	34 / 77	37 / 84	39 / 92
42		-18 / 7	-4 / 14	5 / 21	11 / 28	16 / 34	20 / 41	24 / 48	27 / 55	30 / 62	33 / 70	35 / 77	38 / 85
43			-33 / 2	-11 / 9	0 / 16	8 / 23	13 / 29	18 / 36	22 / 42	25 / 49	28 / 54	31 / 63	34 / 70
44				-21 / 5	-6 / 12	3 / 18	10 / 24	13 / 31	20 / 37	23 / 44	27 / 50	30 / 57	33 / 64
45					-42 / 2	-13 / 8	-1 / 14	6 / 20	12 / 26	17 / 32	21 / 39	25 / 45	28 / 51
46						-25 / 4	-7 / 10	2 / 16	9 / 22	14 / 28	19 / 34	23 / 40	26 / 46
47							-36 / 1	-16 / 6	-3 / 12	5 / 18	11 / 23	17 / 29	21 / 35
48								-29 / 3	-10 / 8	1 / 14	8 / 19	14 / 25	18 / 31
49									-19 / 5	-5 / 10	4 / 16	11 / 21	16 / 26
50									-37 / 2	-12 / 7	-1 / 12	7 / 17	13 / 22
51										-23 / 4	-6 / 9	2 / 14	10 / 19
52										-47 / 1	-14 / 6	-2 / 11	6 / 16
53											-27 / 2	-8 / 7	2 / 12
54												-17 / 5	-3 / 9
55												-32 / 2	-10 / 6
56													-19 / 4
57													-37 / 1
58													
59													
60													

	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
41																			
42	40 / 32																		
43	39 / 85	41 / 92																	
44	38 / 78	40 / 85	42 / 93																
45	36 / 72	39 / 78	41 / 86	43 / 93															
46	35 / 65	38 / 72	40 / 79	42 / 86	44 / 93														
47	34 / 60	36 / 66	39 / 73	41 / 79	43 / 86	45 / 93													
48	32 / 54	35 / 60	38 / 67	40 / 73	42 / 80	44 / 86	46 / 93												
49	31 / 49	34 / 55	36 / 61	39 / 67	41 / 74	43 / 80	45 / 87	47 / 93											
50	29 / 44	32 / 50	35 / 56	38 / 62	40 / 68	42 / 74	44 / 80	46 / 87	48 / 93										
51	28 / 40	31 / 46	34 / 51	36 / 57	39 / 63	41 / 69	43 / 75	45 / 81	47 / 87	49 / 93									
52	26 / 36	29 / 41	32 / 47	35 / 52	38 / 58	40 / 63	42 / 69	44 / 75	46 / 81	48 / 87	50 / 94								
53	24 / 32	27 / 37	31 / 42	34 / 48	36 / 53	39 / 58	41 / 64	43 / 70	46 / 76	48 / 82	49 / 88	51 / 96							
54	22 / 28	26 / 33	29 / 38	32 / 43	35 / 49	38 / 54	40 / 59	42 / 65	45 / 70	47 / 76	49 / 82	50 / 88	52 / 94						
55	20 / 25	24 / 30	27 / 34	31 / 39	34 / 44	36 / 49	39 / 55	41 / 60	44 / 65	46 / 71	48 / 76	50 / 82	52 / 88	53 / 94					
56	17 / 21	22 / 26	26 / 31	29 / 36	32 / 40	35 / 45	38 / 50	40 / 55	43 / 61	45 / 66	47 / 71	49 / 77	51 / 82	53 / 88	54 / 94				
57	14 / 18	19 / 23	24 / 27	27 / 32	31 / 37	34 / 41	37 / 46	39 / 51	42 / 56	44 / 61	46 / 67	48 / 72	50 / 77	52 / 83	54 / 88	55 / 94			
58	11 / 16	17 / 20	22 / 24	26 / 29	29 / 33	32 / 38	35 / 42	38 / 47	40 / 52	43 / 57	45 / 62	47 / 67	49 / 72	51 / 78	53 / 83	55 / 89	56 / 94		
59	9 / 13	14 / 17	19 / 21	24 / 25	28 / 30	31 / 34	34 / 39	37 / 43	39 / 48	42 / 53	44 / 58	46 / 63	48 / 68	50 / 73	52 / 78	54 / 83	56 / 89	57 / 94	
60	4 / 10	11 / 14	17 / 18	22 / 22	26 / 27	29 / 31	33 / 35	36 / 40	38 / 44	41 / 49	43 / 54	45 / 59	47 / 63	49 / 68	51 / 73	53 / 78	55 / 83	57 / 88	58 / 94

Dry Bulb Temperatures

Elevations between 501 and 1,900 feet

Wet Bulb Temperature
39 to 80 F
(Read Down)

Dry Bulb Temperatures
61 to 80 F
(Read Across)

	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	-50 1	-14 4	-1 8	8 12	14 16	19 20	24 24	29 28	31 32	34 34	37 41	40 45	42 50	44 54	47 59	49 64	51 69	53 74	54 79	56 84	58 89	59 95
62	-25 2	-6 6	4 10	11 13	17 17	22 21		26 25	30 29	33 33	34 37	38 42	41 46	43 50	44 55	48 60	50 64	52 69	54 74	55 79	57 84	59 89
63	-54 4	-14 7	-1 11	8 15	14 19	20 19		24 22	28 26	31 30	34 34	37 38	40 43	42 47	45 51	47 56	49 60	51 65	53 70	55 74	57 79	59 84
64	-27 2	-7 5	4 9	11 12	17 14			22 20	26 24	30 27	33 31	34 35	38 39	41 43	44 48	46 52	49 56	50 61	52 65	54 70	56 75	58 80
65	-15 3	-1 7	8 10	14 14				20 17	24 21	28 25	32 29	35 32	38 36	40 40	43 44	45 49	47 53	49 57	51 61	53 64	55 70	57 75
66	-28 2	-7 5	4 6	11 12				17 15	22 19	24 22	30 26	33 30	36 33	39 37	42 41	44 45	46 49	49 53	51 58	53 62	54 64	56 71
67	-15 3	-1 6	8 10					15 13	20 16	24 20	28 23	32 27	35 31	38 34	41 38	43 42	44 46	48 50	50 54	52 58	54 63	56 67
68	-29 2	-7 5	4 8					12 11	16 14	22 18	27 21	30 24	34 28	37 32	40 35	42 39	45 43	47 47	49 51	51 55	53 59	55 63
69	-15 3	-1 4						8 9	15 12	20 16	25 19	29 22	32 24	35 29	38 33	41 34	44 40	46 44	48 47	50 51	52 55	54 59
70	-29 1	-7 4						4 7	12 10	18 14	23 17	27 20	31 22	34 27	37 30	40 34	43 37	45 41	47 44	50 48	52 52	54 56
71	-15 3							0 6	9 9	15 12	21 15	25 18	29 21	33 24	34 29	39 31	42 34	44 38	46 42	49 45	51 49	53 53
72	-28 1							-6 4	5 7	12 10	18 13	23 16	28 19	31 22	35 25	38 29	40 32	43 35	44 39	48 42	50 44	52 50
73	-14 3							-14 3	0 5	9 8	16 11	21 14	26 17	30 20	33 23	34 26	39 30	42 33	45 36	47 40	49 43	51 47
74	-27 1							-27 1	-4 4	5 7	13 10	19 12	24 15	28 18	32 21	35 24	39 27	41 30	44 34	46 37	48 40	51 44
75								-13 2	1 5	10 8	16 11	22 13	26 16	30 19	34 22	37 25	40 28	43 31	45 35	48 38	50 41	52 44
76								-25 1	-5 4	4 7	14 9	20 12	24 15	29 17	32 20	34 23	38 26	42 29	44 32	47 35	49 38	51 42
77								-57	-12 3	2 5	10 8	17 10	22 13	27 16	31 18	34 21	38 24	41 27	43 30	46 33	48 36	50 39
78									-23 1	-4 4	7 6	14 9	20 11	25 14	29 17	33 19	36 22	39 25	42 28	45 31	47 34	50 37
79									-49	-11 2	3 5	11 8	18 10	23 13	28 15	32 18	35 20	38 23	41 26	44 29	46 32	49 35
80										-21 2	-2 4	8 6	15 9	21 11	26 14	30 16	34 19	37 21	40 24	43 27	45 30	49 32

	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
61																				
62	60 95																			
63	60 89	61 95																		
64	59 85	61 90	62 96																	
65	59 80	60 85	62 90	63 95																
66	58 74	60 80	61 85	63 90	64 95															
67	57 71	59 76	61 80	62 85	64 90	65 95														
68	57 67	59 72	60 76	62 81	63 85	65 90	67 95													
69	56 64	58 68	60 72	61 77	63 81	65 84	66 90	68 95												
70	55 60	57 64	59 68	60 72	62 77	64 81	66 86	67 90	69 95											
71	55 57	57 60	59 65	60 69	62 73	63 77	65 82	67 86	68 91	70 95										
72	54 50	56 57	58 61	60 65	61 69	63 73	65 77	66 82	68 86	69 91	71 95									
73	53 50	55 55	57 60	59 62	61 65	62 69	64 74	66 78	67 82	69 84	70 91	72 95								
74	53 47	55 51	57 54	58 58	60 62	62 64	64 70	65 74	67 78	68 82	70 87	71 91	72 95							
75	52 44	54 48	56 51	58 55	60 59	61 62	63 66	65 70	66 74	68 78	69 82	71 87	72 91	74 95						
76	51 42	53 45	55 49	57 52	59 56	61 59	62 63	64 67	66 71	67 75	69 79	70 83	72 87	73 91	75 96					
77	50 39	53 43	55 46	57 49	59 53	60 56	62 60	64 63	65 67	67 71	68 75	70 79	71 83	73 87	74 91	76 96				
78	50 37	52 40	54 43	56 46	58 50	60 53	61 57	63 60	65 64	66 67	69 71	69 75	71 79	72 83	74 87	75 91	77 96			
79	49 35	51 38	53 41	55 44	57 47	59 50	61 54	63 57	64 61	66 64	67 68	69 72	71 75	72 79	73 83	75 87	76 91	78 96		
80	49 32	50 35	52 38	54 41	56 45	58 48	60 51	62 54	64 58	65 61	67 65	69 68	70 72	72 76	73 79	75 83	76 87	77 92	79 96	80

DP RH | DP RH

Elevations between 501 and 1,900 feet

Wet Bulb Temperature 49 to 91 F (Read Down)

Dry Bulb Temperatures 81 to 100 F (Read Across)

DP	DP
RH	RH

Dry Bulb	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	-40 1	-9 3	4 5	12 7	19 10	24 12	28 15	32 17	34 20	39 22	42 25	45 29	47 30	49 33	52 36	54 39	56 42	58 45	60 48	61 51	63 55	65 58	67 62	68 65	70 69	71 72	72 76	74 80	76 84	77 88	78 92	80 96
82	-18 2	-1 4	9 6	16 8	22 10	27 13	31 16	34 18	38 21	41 23	44 26	46 29	49 31	51 34	53 37	55 40	57 43	59 46	61 49	63 52	64 55	66 59	68 62	69 65	71 68	72 71	74 76	75 80	77 84	78 88	79 92	81 96
83	-34 1	-7 3	5 6	13 8	20 9	25 12	29 14	32 17	36 19	40 21	42 24	45 27	48 29	50 32	52 35	54 38	56 41	58 44	60 46	62 49	64 53	66 56	67 59	69 62	70 66	72 69	73 73	75 76	76 80	78 84	79 88	80 92
84	-15 2	1 4	10 6	17 8	23 10	27 13	32 15	36 17	38 20	41 22	44 25	47 27	49 30	52 33	54 36	56 39	58 41	60 44	62 47	63 50	65 53	67 56	68 59	70 63	71 66	73 70	74 73	76 77	77 80	79 84	80 88	81 92
85	-29 1	-5 3	7 6	14 8	21 9	26 11	30 14	34 16	37 18	40 21	43 23	46 26	48 28	51 31	53 33	55 36	57 39	59 42	61 45	63 47	65 50	66 54	68 57	69 60	71 63	72 66	74 70	76 73	77 77	78 81	80 84	81 88
86	-12 2	2 4	9 6	18 8	24 10	28 12	32 15	36 17	39 19	42 22	45 24	48 26	50 29	52 32	54 34	57 37	59 40	60 42	62 45	64 48	66 51	67 54	69 57	70 60	71 64	72 67	74 70	75 74	77 77	78 81	79 84	81 88
87	-24 1	-3 3	6 5	16 7	22 9	27 11	31 13	35 16	38 18	41 20	44 22	47 25	49 27	52 30	54 32	56 35	58 38	60 40	62 43	64 46	65 49	67 51	69 54	70 57	72 61	72 64	75 67	76 70	78 74	79 77	80 81	82 85
88	-50	-10 2	4 4	13 6	16 8	25 10	29 12	33 14	37 16	40 19	43 21	46 23	48 26	51 28	53 30	55 33	57 35	59 38	61 41	63 44	65 46	66 49	68 52	70 55	71 58	72 61	74 64	76 67	77 71	79 74	80 78	81 81
89	-19 1	-1 2	10 3	17 5	23 7	28 9	32 11	36 13	39 15	42 17	45 19	48 22	50 24	52 26	55 29	57 31	59 34	61 36	62 39	64 41	66 44	68 47	69 50	71 53	72 55	74 58	76 61	77 65	78 68	80 71	81 74	83 78
90	-37	-7 2	6 4	14 6	21 8	26 10	30 12	34 14	38 16	41 18	44 20	47 23	49 25	52 27	54 29	56 32	58 34	60 37	62 40	64 42	66 45	67 48	69 51	71 54	72 57	74 60	76 63	77 66	78 70	79 73	81 76	82 80
91	-15 1	1 3	8 5	18 7	24 9	29 11	33 13	37 15	40 17	43 19	46 21	48 23	51 25	53 28	55 30	57 32	59 35	61 37	63 40	65 42	67 45	69 48	70 51	72 53	73 56	76 59	78 62	79 65	81 69	82 72	83 75	85 79
92	-28 1	-4 2	8 4	16 6	22 8	27 10	31 12	35 14	39 16	42 18	45 20	47 22	50 24	52 26	55 28	57 31	59 33	61 36	63 38	65 40	67 43	68 46	70 49	71 51	73 54	74 57	76 60	77 63	79 66	80 69	82 72	83 76
93	-11 2	4 3	13 5	20 7	26 9	30 11	34 13	38 15	41 18	44 20	47 22	49 25	52 27	54 29	56 31	58 34	60 36	62 38	64 41	66 43	68 46	69 49	71 51	72 54	74 57	76 60	77 63	79 66	80 69	81 72	83 75	84 79
94	-26 1	-1 3	10 4	17 6	23 8	28 10	32 12	36 14	40 16	43 18	46 20	48 23	51 25	53 27	55 30	58 32	60 34	62 37	64 39	66 41	67 44	69 47	70 49	72 52	74 55	75 58	77 61	78 64	80 67	81 70	82 73	84 77
95	-43	-7 2	6 4	14 5	21 7	26 9	31 11	35 13	39 15	42 17	45 19	47 22	50 24	52 26	55 28	57 30	59 33	61 35	63 37	65 40	67 42	68 45	70 47	72 50	73 53	75 56	76 59	78 62	79 65	81 68	82 71	84 75
96	-16 1	1 3	11 4	19 6	25 8	29 9	34 11	37 13	41 15	44 17	47 19	49 21	52 23	54 25	56 27	58 29	60 31	62 33	64 35	66 38	68 40	70 43	71 45	73 48	74 50	76 53	77 55	79 58	80 61	82 64	83 67	85 70
97	-30 1	-4 2	8 4	18 5	23 7	29 9	32 10	36 12	40 14	42 16	46 17	48 19	51 21	53 23	56 25	58 27	60 29	62 32	64 34	66 36	67 39	69 41	71 43	72 46	74 48	76 51	77 53	79 56	80 59	81 61	83 64	84 67
98	-11 1	4 3	13 5	20 6	26 8	31 9	35 11	38 13	42 15	45 16	48 18	50 20	53 22	55 24	57 26	59 28	61 30	63 32	65 34	67 37	69 39	70 41	72 44	74 46	75 49	77 51	78 54	80 56	81 59	83 62	84 64	85 67
99	-21 1	-1 2	10 4	18 5	24 7	29 8	33 10	37 12	41 14	44 15	47 17	49 19	52 21	54 23	57 25	59 27	61 29	63 31	65 33	66 35	68 37	70 39	72 42	73 44	75 46	76 49	78 51	79 54	81 57	82 59	84 62	85 65
100	-43	-7 2	4 3	15 5	22 6	27 8	32 9	36 11	40 13	43 14	46 16	49 18	51 20	54 21	56 23	58 25	60 27	62 29	64 31	66 33	68 35	70 38	71 40	73 42	74 44	76 47	78 49	79 52	81 54	82 57	83 60	85 62

Elevations between 501 and 1,900 feet

Wet Bulb Temperatures, 58 to 95 F

(Read Down)

Dry Bulb Temperatures 101 to 119 F (Read Across)

Dry Bulb	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
101	-18 / 1	2 / 3	12 / 4	20 / 5	26 / 7	30 / 8	35 / 10	38 / 12	42 / 13	45 / 15	48 / 17	50 / 18	53 / 20	55 / 22	57 / 24	60 / 26	62 / 28	64 / 30	65 / 32	67 / 34	69 / 36	71 / 38	72 / 40	74 / 43	76 / 45	77 / 47	79 / 50	80 / 52	82 / 55	83 / 57	84 / 60	86 / 63	87 / 65	89 / 68	90 / 71	91 / 74	92 / 77	94 / 80
102	-28 / 1	-3 / 2	9 / 3	17 / 5	24 / 6	29 / 8	33 / 9	37 / 11	41 / 12	44 / 14	47 / 16	50 / 17	52 / 19	55 / 21	57 / 23	59 / 25	61 / 26	63 / 28	65 / 30	67 / 32	69 / 34	70 / 36	72 / 38	74 / 41	76 / 43	77 / 45	78 / 48	80 / 50	81 / 53	83 / 55	84 / 58	86 / 60	87 / 63	89 / 66	90 / 69	91 / 71	92 / 74	93 / 77
103	-10 / 1	5 / 3	15 / 4	21 / 6	27 / 7	32 / 8	36 / 10	40 / 12	43 / 13	46 / 15	49 / 16	51 / 18	54 / 20	56 / 21	58 / 23	60 / 25	63 / 27	64 / 29	66 / 31	68 / 33	70 / 35	72 / 37	73 / 39	75 / 41	76 / 43	78 / 46	80 / 48	81 / 50	82 / 53	84 / 55	85 / 58	87 / 60	88 / 63	89 / 66	91 / 69	92 / 71	93 / 74	94 / 77
104	-19 / 1	1 / 2	12 / 3	19 / 5	25 / 6	30 / 8	35 / 9	38 / 11	42 / 12	45 / 14	48 / 15	51 / 17	53 / 19	55 / 20	58 / 22	60 / 24	62 / 26	64 / 28	66 / 29	68 / 31	69 / 33	71 / 35	73 / 37	75 / 40	76 / 42	78 / 44	79 / 46	81 / 48	82 / 51	84 / 53	85 / 56	86 / 58	88 / 61	89 / 63	90 / 66	91 / 69	92 / 72	93 / 75
105	-37	-5 / 2	8 / 3	17 / 4	23 / 6	29 / 7	33 / 8	37 / 10	41 / 11	44 / 13	47 / 14	50 / 16	52 / 18	55 / 19	57 / 21	59 / 23	61 / 24	63 / 26	65 / 28	67 / 30	69 / 32	71 / 34	72 / 36	74 / 38	76 / 40	77 / 42	79 / 44	80 / 47	82 / 49	83 / 51	85 / 54	86 / 56	87 / 59	89 / 61	90 / 64	91 / 66	93 / 69	94 / 72
106		-12 / 1	4 / 2	14 / 4	21 / 5	27 / 6	32 / 8	36 / 9	40 / 11	43 / 12	46 / 14	49 / 15	52 / 17	54 / 19	56 / 20	59 / 22	61 / 23	63 / 25	65 / 27	67 / 29	69 / 30	70 / 32	72 / 34	74 / 36	75 / 38	77 / 40	78 / 43	80 / 45	82 / 47	83 / 49	84 / 52	86 / 54	87 / 57	89 / 59	90 / 61	91 / 64	93 / 67	94 / 70
107		-23 / 1	-1 / 2	11 / 3	19 / 4	25 / 6	30 / 7	35 / 8	38 / 10	42 / 11	45 / 13	48 / 14	51 / 16	53 / 17	56 / 19	58 / 20	60 / 22	62 / 24	64 / 26	66 / 27	68 / 29	70 / 31	72 / 33	73 / 35	75 / 37	77 / 39	78 / 41	80 / 43	81 / 45	82 / 47	84 / 50	86 / 52	87 / 54	89 / 57	90 / 59	91 / 62	92 / 64	94 / 67
108		-49	-7 / 1	7 / 3	16 / 4	23 / 5	29 / 6	33 / 8	37 / 9	41 / 10	44 / 12	47 / 13	50 / 15	53 / 16	55 / 18	57 / 19	60 / 21	62 / 23	64 / 24	66 / 26	68 / 28	70 / 30	71 / 31	73 / 33	75 / 35	76 / 37	78 / 39	79 / 41	81 / 43	82 / 46	84 / 48	85 / 50	87 / 52	88 / 55	89 / 57	91 / 59	92 / 62	94 / 65
109			-15 / 1	3 / 2	10 / 3	21 / 5	27 / 6	32 / 7	36 / 9	40 / 10	43 / 11	46 / 13	49 / 14	52 / 15	54 / 17	57 / 18	59 / 20	61 / 22	63 / 23	65 / 25	67 / 27	69 / 28	71 / 30	73 / 32	74 / 34	76 / 36	78 / 38	79 / 40	81 / 42	82 / 44	84 / 46	85 / 48	86 / 50	88 / 53	89 / 55	91 / 57	92 / 60	94 / 63
110			-28	-2 / 2	10 / 3	19 / 4	25 / 5	30 / 6	35 / 8	39 / 9	42 / 10	45 / 12	48 / 13	51 / 15	54 / 16	56 / 18	58 / 19	61 / 21	63 / 22	65 / 24	67 / 25	69 / 27	70 / 29	72 / 31	74 / 32	76 / 34	77 / 36	79 / 38	80 / 40	82 / 42	83 / 44	85 / 46	86 / 48	88 / 51	89 / 53	90 / 55	92 / 58	93 / 61
111				-8 / 1	7 / 2	16 / 3	23 / 5	29 / 6	33 / 7	37 / 8	41 / 10	44 / 11	48 / 12	50 / 14	53 / 15	56 / 17	58 / 18	60 / 20	62 / 21	64 / 23	66 / 24	68 / 26	70 / 28	72 / 29	73 / 31	75 / 33	77 / 35	78 / 37	80 / 39	81 / 41	83 / 43	84 / 45	86 / 47	87 / 49	89 / 51	90 / 53	91 / 56	93 / 58
112					-17 / 1	2 / 2	13 / 3	21 / 4	27 / 5	32 / 7	36 / 8	40 / 9	43 / 10	47 / 12	50 / 13	52 / 14	55 / 16	57 / 17	60 / 19	62 / 20	64 / 22	66 / 23	68 / 25	70 / 26	71 / 28	73 / 30	75 / 32	76 / 33	78 / 35	80 / 37	81 / 39	83 / 41	84 / 43	86 / 45	87 / 47	88 / 49	90 / 51	91 / 54	93 / 56
113						-32 / 1	-3 / 2	10 / 3	19 / 4	26 / 5	30 / 6	35 / 7	39 / 8	42 / 10	46 / 11	49 / 12	52 / 14	54 / 15	57 / 16	59 / 18	61 / 19	63 / 21	65 / 22	67 / 24	69 / 25	71 / 27	73 / 29	74 / 30	76 / 32	78 / 34	79 / 36	81 / 37	82 / 39	84 / 41	85 / 43	87 / 45	88 / 47	90 / 50	91 / 52
114							-10 / 1	6 / 2	16 / 3	23 / 4	29 / 5	33 / 7	38 / 8	41 / 9	45 / 10	48 / 11	51 / 13	53 / 14	56 / 15	58 / 17	61 / 18	63 / 20	65 / 21	67 / 23	69 / 24	71 / 26	72 / 27	74 / 29	76 / 31	77 / 32	79 / 34	81 / 36	82 / 38	84 / 40	85 / 42	86 / 44	88 / 46	89 / 48	91 / 50
115								-19 / 1	2 / 2	13 / 3	21 / 4	27 / 5	32 / 6	36 / 7	40 / 8	44 / 10	47 / 11	50 / 12	53 / 13	55 / 15	58 / 16	60 / 18	62 / 19	64 / 20	66 / 22	68 / 23	70 / 25	72 / 26	74 / 28	75 / 30	77 / 31	79 / 33	80 / 35	82 / 37	83 / 39	85 / 40	86 / 42	88 / 44	89 / 46	90 / 48
116									-3 / 1	10 / 2	18 / 3	25 / 4	30 / 6	35 / 7	39 / 8	43 / 9	44 / 10	49 / 11	52 / 13	55 / 14	57 / 15	59 / 17	62 / 18	64 / 19	66 / 21	68 / 22	70 / 24	71 / 25	73 / 27	75 / 28	77 / 30	78 / 32	80 / 33	81 / 35	83 / 37	84 / 39	86 / 41	87 / 42	89 / 44	90 / 46
117									-10 / 1	6 / 2	16 / 3	23 / 4	28 / 5	34 / 6	38 / 7	42 / 8	45 / 10	48 / 11	51 / 12	54 / 13	56 / 14	59 / 16	61 / 17	63 / 18	65 / 19	67 / 21	69 / 22	71 / 23	73 / 24	75 / 26	76 / 27	78 / 29	80 / 30	81 / 32	83 / 34	84 / 36	86 / 37	87 / 39	89 / 41	90 / 43	90 / 45
118										-20 / 1	2 / 2	10 / 3	21 / 5	27 / 6	32 / 7	37 / 8	41 / 9	44 / 10	47 / 11	50 / 12	53 / 14	56 / 15	58 / 16	60 / 18	63 / 19	65 / 20	67 / 21	69 / 23	71 / 24	72 / 26	74 / 27	76 / 29	78 / 30	79 / 32	81 / 33	82 / 35	84 / 36	85 / 38	87 / 39	88 / 41	90 / 43
119											-40	-4 / 1	10 / 2	19 / 3	25 / 4	31 / 5	35 / 6	40 / 7	43 / 8	47 / 9	50 / 11	52 / 12	55 / 13	59 / 14	60 / 15	62 / 17	64 / 18	66 / 19	68 / 21	70 / 22	72 / 24	74 / 25	76 / 27	77 / 29	79 / 30	80 / 32	82 / 33	84 / 35	85 / 36	87 / 38	89 / 40

DP	DP
RH	RH

Elevations between 1,901 and 3,900 feet

Dry Bulb Temperatures 41 to 60 F (Read Across)

Wet Bulb Temperatures 27 to 57 F (Read Down)

DP RH | DP RH

Wet Bulb Temperatures

Dry Bulb Temperatures

Elevations between 1,901 and 3,900 feet

Wet Bulb Temperatures 39 to 79 F (Read Down)

Dry Bulb Temperatures 61 to 80 F (Read Across)

	DP	DP
	RH	RH

	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60																								
61	-17	-3	6	12	18	22	26	29	32	35	38	40	43	45	47	49	51	53	55	56	58	59	61																							
	4	7	11	14	19	22	26	30	34	38	42	47	51	56	60	65	69	74	79	84	89	95																								
62	-31	-9	2	9	15	20	24	28	31	34	37	39	42	44	46	48	50	52	54	56	57	59	60	62																								
	2	5	9	12	16	20	23	27	31	35	39	43	48	52	56	61	65	70	75	80	85	90	95																							
63		-18	-3	6	12	18	22	26	30	33	36	38	41	43	45	47	49	51	53	55	57	58	60	61	63																							
		3	7	10	14	17	21	25	29	32	36	40	44	48	53	57	61	66	70	75	80	85	90	95																							
64		-32	-9	2	9	15	20	24	28	31	34	37	40	42	45	47	49	51	53	54	56	58	59	61	63	64																						
		1	5	8	11	15	18	22	26	29	33	37	41	45	49	53	57	62	66	71	75	80	85	90	95																						
65			-18	-3	6	13	18	23	27	30	33	36	39	41	44	46	48	50	52	54	55	57	59	60	62	64	65																					
			3	6	9	13	16	20	23	27	30	34	38	42	46	50	54	58	62	67	71	76	80	85	90	95																					
66			-32	-9	2	10	16	21	25	29	32	35	38	40	43	45	47	49	51	53	55	57	58	60	61	63	65	66																				
			1	4	8	11	14	17	21	24	28	31	35	39	43	47	51	55	59	63	67	72	76	81	85	90	95																				
67				-18	-3	6	13	18	23	27	30	34	37	39	42	44	46	48	50	52	54	56	58	59	61	63	64	66	67																			
				3	6	9	12	15	19	22	25	29	32	36	40	43	47	51	55	59	63	68	72	76	81	86	90	95																			
68				-32	-9	2	10	16	21	25	29	32	35	38	41	43	45	48	50	52	54	55	57	59	60	62	64	65	67	68																		
				1	4	7	10	13	17	20	23	26	30	33	37	41	44	48	52	56	60	64	68	72	77	81	86	90	95																		
69					-17	-3	7	13	19	23	27	31	34	37	40	42	45	47	49	51	53	55	56	58	60	62	63	65	66	68	69																	
					3	6	9	12	15	19	21	24	27	31	34	38	41	45	49	53	56	60	64	69	73	77	81	86	91	95																	
70					-31	-9	3	10	16	21	26	29	33	36	39	41	44	46	48	50	52	54	56	58	59	61	63	64	66	67	69	70																
					1	4	7	10	13	16	19	22	26	29	32	35	39	42	46	49	53	57	61	65	69	73	77	82	86	91	95																
71						-17	-2	7	14	19	24	28	31	35	38	40	43	45	47	49	51	53	55	57	59	60	62	64	65	67	68	70	71															
						3	6	9	11	14	17	20	23	26	29	33	36	39	43	46	50	54	58	61	65	69	73	78	82	86	91	95															
72						-30	-8	3	11	17	22	26	30	33	36	39	42	44	46	49	51	53	55	56	58	60	62	63	65	66	68	69	71	72													
						1	4	7	9	12	16	19	23	24	27	30	34	37	40	44	47	51	54	58	62	66	70	74	78	82	86	91	95													
73							-16	-1	8	15	20	24	28	32	35	38	41	43	46	48	50	52	54	56	58	59	61	63	64	66	67	69	70	72	73											
							3	5	9	11	13	16	19	22	25	28	31	34	38	41	44	48	51	55	59	62	66	70	74	78	82	87	91	95											
74							-28	-7	4	12	18	23	27	31	34	37	40	42	45	47	49	51	53	55	57	59	61	62	64	65	67	68	70	71	73	74										
							1	4	6	9	12	16	17	20	23	26	29	32	35	39	42	45	48	52	55	59	63	67	70	74	78	83	87	91	96										
75								-14	0	9	15	21	25	29	33	36	39	41	44	46	48	51	53	55	56	58	60	62	63	65	66	68	69	71	72	74	75									
								3	5	8	10	13	16	19	21	24	27	30	33	36	39	42	46	49	52	56	60	63	67	71	75	79	83	87	91	96									
76								-26	-4	5	13	19	23	27	31	35	38	40	43	45	48	50	52	54	56	58	59	61	63	64	66	68	69	70	72	73	75	76								
								1	4	6	9	11	14	17	19	22	25	28	31	34	37	40	43	46	50	53	57	60	64	67	71	75	79	83	87	91	96								
77								-54	-13	1	9	16	21	26	30	33	36	39	42	45	47	49	51	53	55	57	59	61	62	64	66	67	69	70	71	73	74	76	77							
									3	5	7	10	12	15	18	20	23	26	29	32	34	37	41	44	47	50	54	57	61	64	68	71	75	79	83	87	91	96							
78									-23	-4	6	13	19	24	28	32	35	38	41	44	46	48	51	53	55	56	58	60	62	63	65	67	68	70	71	73	74	75	77	78					
									1	4	6	9	11	13	16	19	23	24	27	29	32	35	38	41	44	48	51	54	57	61	64	68	72	76	79	83	87	91	96					
79									-45	-11	2	10	17	22	27	30	34	37	40	43	45	48	50	52	54	56	58	60	61	63	65	66	68	69	71	72	74	75	76	78	79				
										3	5	7	10	12	16	17	20	22	25	27	30	33	36	39	42	45	48	51	55	58	61	65	68	72	76	80	84	88	92	96				
80										-20	-3	7	14	20	25	29	33	36	39	42	44	47	49	51	53	55	57	59	61	62	64	66	67	69	70	72	73	75	76	77	78			
										2	4	6	8	11	13	16	19	20	23	26	29	33	34	37	40	43	46	49	52	55	58	62	65	69	73	76	80	84	88	92	96			

Elevations between 1,901 and 3,900 feet

Wet Bulb Temperatures 49 to 89 F

(Read Down)

Dry Bulb Temperatures 81 to 100 F

(Read Across)

	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	
81	-8 3	-3 5	12 7	18 9	23 12	27 14	31 16	35 19	39 21	41 24	43 26	46 29	48 32	50 36	53 37	55 40	57 43	58 46	60 49	62 52	64 56	65 59	67 62	68 66	70 69	71 73	73 76	74 80	76 84	77 88	78 92	80 96	81
82	-17 2	-1 4	8 6	15 8	21 10	26 13	30 15	33 17	37 20	40 22	42 25	45 27	47 30	50 33	52 35	54 38	56 41	58 44	60 47	61 50	63 53	65 56	66 59	68 63	70 66	71 69	72 73	74 77	75 80	77 84	78 88	79 92	81 96	82
83	-31 1	-7 3	5 5	13 7	19 9	24 11	28 14	32 16	35 18	39 21	41 23	44 26	47 28	49 31	51 33	53 36	55 39	57 42	59 44	61 47	63 50	64 53	66 57	68 60	69 63	71 66	72 70	74 73	75 76	76 80	78 84	79 88	80 92	82 96	83
84	-14 2	1 4	10 6	17 9	22 10	27 12	31 15	34 17	37 19	40 21	43 24	46 26	48 29	50 31	53 34	55 37	57 39	59 42	60 45	62 48	64 51	66 54	67 57	69 60	70 63	72 67	73 70	75 74	76 77	77 81	79 84	80 88	81 92	83 96	84
85	-26 1	-5 3	6 5	14 7	20 9	25 11	29 13	33 15	36 18	39 20	42 22	45 25	47 27	50 30	52 32	54 35	56 37	58 40	60 43	62 46	63 49	65 51	67 54	68 57	70 61	71 64	73 67	74 70	76 74	77 77	78 81	80 85	81 88	82 92	84 96	85
86	-11 2	2 4	11 6	18 8	23 10	28 12	32 14	35 16	38 19	41 21	44 23	47 25	49 28	51 30	53 33	55 35	57 38	59 41	61 43	63 46	65 49	66 52	68 55	69 58	71 61	72 64	74 67	75 71	77 74	78 78	80 81	81 85	82 88	83 92	85 96	86
87	-21 1	-2 3	8 5	15 7	21 9	26 11	30 13	34 15	37 17	40 19	43 22	46 24	48 26	50 29	53 31	55 33	57 36	59 39	61 41	62 44	64 47	66 49	67 52	69 55	71 58	72 61	74 64	75 68	76 71	78 74	79 78	81 81	82 85	83 89	84 92	86 96	87
88	-29	-8 2	4 4	13 6	19 8	24 10	29 12	33 14	36 16	39 18	42 20	45 22	47 25	50 27	52 29	54 32	56 34	58 37	60 39	62 42	64 44	65 47	67 50	69 53	70 56	72 59	73 62	75 65	76 68	78 71	79 75	80 78	82 81	83 85	84 89	85 92	87 96	88
89		-17 1	0 3	9 5	17 7	22 9	27 11	31 13	35 15	38 17	41 19	44 21	47 23	49 25	51 28	53 30	56 32	58 35	59 37	61 40	63 42	65 45	67 48	68 50	70 53	71 56	73 59	74 62	76 65	77 68	79 71	80 75	81 78	83 82	84 85	85 89	87 92	88 96	89
90			-30 1	-6 3	6 4	14 6	20 8	25 10	30 12	34 13	37 15	40 17	43 20	46 22	48 24	51 26	53 28	55 31	57 33	59 36	61 38	63 40	64 43	66 45	68 48	69 51	71 54	72 56	74 59	75 62	77 65	78 68	80 72	81 75	82 79	84 82	85 85	86 89	88 92	89 96	90
91				-13 2	2 3	11 5	18 7	23 9	28 11	32 12	36 14	39 16	42 18	45 20	47 22	50 25	52 27	54 29	56 31	58 34	60 36	62 38	64 41	66 43	67 46	69 49	71 51	72 54	74 57	75 60	77 63	78 66	79 69	81 72	82 75	83 79	85 82	86 85	87 89	89 92	90 96
92				-23 1	-3 3	8 4	16 6	22 8	27 10	31 11	35 13	38 15	41 17	44 19	47 21	49 23	51 25	54 27	56 30	58 32	60 34	62 36	63 39	65 41	67 44	69 46	70 49	72 52	73 54	75 57	76 60	78 63	79 66	80 69	82 72	83 76	84 79	86 82	87 86	88 89	90 93
93					-45	-9 2	4 3	13 5	19 7	25 9	29 10	33 12	37 14	40 16	43 18	46 20	48 22	51 24	53 26	55 28	57 30	59 32	61 35	63 37	65 39	66 42	68 44	70 47	71 50	73 52	74 55	76 58	77 60	78 63	80 66	81 69	83 73	84 76	85 79	87 82	88 86	89 89
94						-17 1	6 3	10 4	17 6	23 8	28 9	32 11	36 13	39 15	42 17	45 19	47 20	50 22	52 24	54 27	57 29	59 31	61 33	62 35	64 38	66 40	68 42	69 45	71 47	72 50	74 53	76 55	77 58	78 61	80 64	81 67	83 70	84 73	85 76	87 79	88 82	89 86
95							-31 1	-5 2	6 4	15 5	21 7	26 9	30 10	34 12	38 14	41 16	44 17	47 19	50 21	52 23	54 25	56 27	58 29	60 31	62 34	64 36	66 38	67 40	69 43	71 45	72 48	74 50	76 53	77 56	78 58	80 61	81 64	82 67	84 70	85 73	86 76	88 79	89 83
96								-12 1	3 2	12 4	19 6	24 8	29 9	33 11	37 13	40 14	43 16	46 18	48 20	51 22	53 24	55 26	57 28	59 30	61 32	63 34	65 36	67 39	68 41	70 43	72 46	73 48	75 51	76 54	78 57	79 60	81 63	82 66	83 69	85 73	86 76	87 79	89 83
97									-23 1	-2 2	9 4	16 5	22 7	27 8	32 10	36 12	39 13	42 15	45 17	48 19	50 21	52 23	55 24	57 26	59 28	61 30	63 33	65 35	66 37	68 39	70 41	71 44	73 46	74 49	76 51	77 54	79 56	80 59	81 62	83 65	84 67	86 70	87 73	88 76
98										-44 2	-8 3	5 5	14 6	20 8	26 9	30 11	34 13	38 14	41 16	44 18	47 19	49 21	52 23	54 25	56 27	58 29	60 31	62 33	64 35	66 37	68 40	69 42	71 44	73 47	74 49	76 52	77 54	79 57	80 59	81 62	83 65	84 68	85 71	87 74
99											-36 1	1 2	11 4	18 5	24 7	29 8	33 10	37 12	40 13	43 15	46 17	49 18	51 20	53 22	56 24	58 26	60 28	62 30	64 32	65 34	67 36	69 38	71 40	72 42	74 45	76 47	77 50	79 52	80 55	81 57	83 60	84 63	85 66	87 69	88 71
100												-29 1	-4 2	8 3	16 5	22 6	27 8	32 9	35 11	39 12	42 14	45 16	48 17	50 19	53 21	55 23	57 24	59 26	61 28	63 30	65 32	67 34	68 36	70 38	72 41	73 43	75 45	76 48	78 50	79 53	81 55	82 58	84 61	85 63	86 65	88 68

Elevations between 1,901 and 3,900 feet

Wet Bulb Temperatures, 57 to 90 F

(Read Down)

Dry Bulb Temperatures 101 to 119 F (Read Across)	DP / RH 57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
101	-11 / 1	4 / 3	13 / 4	20 / 5	25 / 7	30 / 8	34 / 10	38 / 11	41 / 13	44 / 15	47 / 16	50 / 18	52 / 20	54 / 21	57 / 23	59 / 25	61 / 27	63 / 29	65 / 31	66 / 33	68 / 35	70 / 37	71 / 39	73 / 41	75 / 43	76 / 46	78 / 48	79 / 50	81 / 53	82 / 55	83 / 58	85 / 60	86 / 63	87 / 66
102	-20 / 1	-1 / 2	10 / 3	18 / 5	24 / 6	29 / 8	33 / 9	37 / 11	40 / 12	43 / 14	46 / 15	49 / 17	51 / 19	54 / 20	56 / 22	58 / 24	60 / 26	62 / 27	64 / 29	66 / 31	68 / 33	69 / 35	71 / 37	73 / 39	74 / 42	76 / 44	77 / 46	79 / 48	80 / 51	82 / 53	83 / 56	84 / 58	86 / 61	87 / 63
103	-37	-6 / 2	7 / 3	15 / 4	22 / 6	27 / 7	32 / 8	36 / 10	39 / 11	42 / 13	45 / 14	48 / 16	51 / 18	53 / 19	55 / 21	58 / 23	60 / 24	62 / 26	64 / 28	65 / 30	67 / 32	69 / 34	71 / 36	72 / 38	74 / 40	75 / 42	77 / 44	78 / 46	80 / 48	81 / 51	83 / 53	84 / 56	86 / 58	87 / 61
104		-13 / 1	0 / 2	13 / 4	20 / 5	25 / 6	30 / 8	34 / 9	38 / 11	41 / 12	44 / 13	47 / 15	50 / 17	52 / 18	55 / 20	57 / 21	59 / 23	61 / 25	63 / 27	65 / 28	67 / 30	69 / 32	70 / 34	72 / 36	74 / 38	75 / 40	77 / 42	78 / 45	80 / 47	81 / 49	83 / 52	84 / 54	85 / 57	87 / 59
105		-24 / 1	-2 / 2	9 / 3	17 / 4	24 / 6	29 / 7	33 / 8	37 / 10	40 / 11	43 / 12	46 / 14	49 / 16	52 / 17	54 / 19	56 / 20	58 / 22	61 / 24	63 / 25	64 / 27	66 / 29	68 / 31	70 / 33	72 / 35	73 / 37	75 / 40	76 / 41	78 / 43	79 / 45	81 / 47	82 / 49	84 / 52	85 / 54	86 / 57
106			-48	6 / 1	6 / 3	15 / 4	22 / 5	27 / 6	32 / 8	36 / 9	39 / 10	43 / 12	46 / 13	48 / 15	51 / 16	53 / 18	56 / 19	58 / 21	60 / 23	62 / 24	64 / 26	66 / 28	68 / 30	69 / 31	71 / 33	73 / 35	74 / 37	76 / 39	78 / 41	79 / 43	80 / 45	82 / 46	83 / 48	85 / 50	86 / 52
107				-16 / 1	2 / 2	12 / 3	19 / 4	25 / 6	30 / 7	34 / 8	38 / 10	42 / 11	45 / 12	48 / 14	50 / 15	53 / 17	55 / 18	57 / 20	59 / 22	62 / 23	64 / 25	65 / 27	67 / 28	69 / 30	71 / 32	72 / 34	74 / 36	76 / 38	77 / 40	79 / 42	80 / 44	82 / 46	83 / 48	84 / 50	86 / 52
108					-28 / 2	-3 / 2	9 / 3	17 / 4	23 / 5	29 / 6	33 / 8	37 / 9	41 / 10	44 / 12	47 / 13	49 / 14	52 / 16	54 / 17	57 / 19	59 / 20	61 / 22	63 / 24	65 / 25	67 / 27	69 / 29	70 / 31	72 / 32	74 / 34	75 / 36	77 / 38	78 / 40	80 / 42	81 / 44	83 / 46	84 / 48	86 / 51
109						-9 / 1	5 / 2	15 / 3	21 / 5	27 / 6	32 / 7	36 / 8	40 / 10	43 / 11	46 / 12	49 / 14	51 / 15	54 / 17	56 / 18	58 / 19	60 / 21	63 / 23	64 / 24	66 / 26	68 / 28	70 / 29	72 / 31	73 / 33	75 / 35	77 / 36	79 / 38	80 / 40	81 / 42	83 / 44	84 / 47	85 / 49
110							-19 / 1	1 / 2	12 / 3	19 / 4	25 / 5	30 / 6	35 / 8	38 / 9	42 / 10	45 / 12	48 / 13	51 / 14	53 / 16	56 / 17	58 / 19	60 / 20	62 / 22	64 / 23	66 / 25	68 / 26	70 / 28	71 / 30	73 / 31	75 / 33	76 / 35	78 / 37	79 / 39	81 / 41	82 / 43	84 / 45	85 / 47
111								-32 / 1	-4 / 2	5 / 3	17 / 4	24 / 5	29 / 6	33 / 7	37 / 8	41 / 10	44 / 11	47 / 12	50 / 13	52 / 15	55 / 16	57 / 18	59 / 19	61 / 21	64 / 22	65 / 24	67 / 25	69 / 27	71 / 28	73 / 30	74 / 32	76 / 34	77 / 35	79 / 37	80 / 39	82 / 41	83 / 43	85 / 45
112									-10 / 1	5 / 2	15 / 3	22 / 4	27 / 5	32 / 7	36 / 8	40 / 9	43 / 10	46 / 11	49 / 13	52 / 14	54 / 15	57 / 17	59 / 18	61 / 20	63 / 21	65 / 23	67 / 24	69 / 26	70 / 27	72 / 29	74 / 31	76 / 32	77 / 34	79 / 36	80 / 38	82 / 40	83 / 42	85 / 44
113									-19 / 1	1 / 2	12 / 3	19 / 4	25 / 5	31 / 6	35 / 7	39 / 8	42 / 10	45 / 11	48 / 12	51 / 13	54 / 15	56 / 16	58 / 17	60 / 19	63 / 20	65 / 22	66 / 23	68 / 25	70 / 26	72 / 28	74 / 29	75 / 31	77 / 33	78 / 35	80 / 36	81 / 38	83 / 40	84 / 42
114										-26 / 1	-4 / 2	9 / 3	17 / 4	24 / 5	29 / 6	34 / 7	38 / 8	41 / 9	44 / 9	47 / 11	50 / 12	53 / 14	55 / 15	58 / 16	60 / 18	62 / 19	64 / 21	66 / 22	68 / 24	70 / 25	71 / 27	73 / 28	75 / 30	76 / 32	78 / 33	80 / 35	81 / 37	83 / 39	84 / 40
115											-11 / 1	5 / 2	15 / 3	22 / 4	27 / 5	32 / 6	36 / 7	40 / 8	44 / 9	47 / 11	50 / 12	52 / 13	55 / 14	57 / 16	59 / 17	61 / 18	64 / 20	66 / 21	67 / 23	69 / 24	71 / 26	73 / 27	74 / 29	76 / 30	78 / 32	79 / 34	81 / 35	82 / 37	84 / 39
116												-20 / 1	1 / 2	12 / 2	20 / 4	26 / 5	31 / 6	35 / 7	39 / 8	43 / 9	46 / 10	49 / 11	51 / 12	54 / 14	56 / 15	58 / 16	61 / 18	63 / 19	65 / 20	67 / 22	69 / 23	71 / 25	72 / 26	74 / 28	76 / 29	77 / 31	79 / 32	81 / 34	82 / 36	84 / 38
117													-28 / 1	-4 / 2	9 / 2	17 / 3	24 / 4	29 / 5	34 / 6	38 / 7	42 / 8	45 / 9	48 / 11	51 / 12	53 / 13	56 / 14	58 / 15	60 / 17	63 / 18	65 / 19	67 / 21	68 / 22	70 / 24	72 / 25	74 / 26	76 / 28	77 / 30	79 / 31	80 / 33	82 / 34	83 / 36
118														-11 / 1	5 / 2	15 / 3	22 / 4	28 / 5	33 / 6	37 / 7	41 / 8	44 / 9	47 / 10	50 / 11	53 / 12	55 / 13	58 / 15	60 / 16	62 / 17	64 / 19	66 / 20	68 / 21	70 / 23	72 / 24	73 / 26	75 / 27	77 / 28	78 / 30	80 / 32	81 / 33	83 / 35
119															-21 / 1	1 / 1	12 / 2	20 / 3	26 / 4	31 / 5	36 / 6	40 / 7	43 / 8	46 / 9	49 / 11	52 / 12	55 / 13	57 / 14	59 / 15	62 / 16	64 / 18	66 / 19	68 / 20	69 / 22	71 / 23	73 / 24	75 / 26	76 / 27	78 / 28	80 / 30	81 / 32	83 / 34

Elevations between 3,901 and 6,100 feet

Dry Bulb Temperatures 41 to 60 F
(Read Across)

Wet Bulb Temperatures 27 to 56 F
(Read Down)

DP	DP
RH	RH

Wet Bulb Temperatures

Dry Bulb Temperatures	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
31	-20 / 10	-8 / 18	0 / 26	6 / 35	11 / 44	16 / 52	19 / 61	23 / 71	26 / 80	28 / 90	31																													
32	-35 / 4	-15 / 12	-4 / 20	3 / 29	9 / 37	13 / 46	17 / 54	20 / 63	24 / 73	27 / 81	30 / 90	32																												
33	-25 / 7	-10 / 15	-1 / 23	5 / 30		11 / 39	15 / 47	19 / 56	22 / 64	25 / 73	28 / 82	31 / 91	33																											
34	-40 / 2	-19 / 9	-6 / 17	2 / 25		8 / 32	12 / 40	17 / 49	20 / 57	24 / 65	27 / 74	29 / 83	32 / 91	34																											
35		-31 / 4	-13 / 12	-3 / 19		4 / 27	10 / 34	14 / 42	18 / 50	22 / 58	25 / 67	28 / 75	30 / 83	33 / 92	35																										
36			-22 / 7	-9 / 14		0 / 21	7 / 29	12 / 36	16 / 44	20 / 52	23 / 60	26 / 68	29 / 76	32 / 84	34 / 92	36																									
37			-40 / 3	-16 / 9		-5 / 16	3 / 23	9 / 31	14 / 38	18 / 46	22 / 53	25 / 61	28 / 69	30 / 76	33 / 84	35 / 92	37																								
38				-27 / 5		-11 / 12	-1 / 19	6 / 26	11 / 33	16 / 40	20 / 48	23 / 55	26 / 62	29 / 69	31 / 77	34 / 84	36 / 92	38																							
39				-55 / 1		-19 / 7	-6 / 14	2 / 21	8 / 27	13 / 34	18 / 42	21 / 49	25 / 56	27 / 63	30 / 70	33 / 77	35 / 85	37 / 92	39																						
40						-32 / 0	-13 / 6	-2 / 13	5 / 20	11 / 27	15 / 34	19 / 42	23 / 49	26 / 57	29 / 64	31 / 71	34 / 79	36 / 85	38 / 92	40																					
41											-32 / 6	-8 / 12	1 / 18	8 / 25	13 / 31	17 / 38	21 / 44	24 / 51	27 / 58	30 / 64	32 / 71	35 / 78	37 / 85	39 / 92	41																
42											-39 / 3	-15 / 9	-3 / 14	4 / 20	10 / 27	15 / 33	19 / 39	23 / 46	25 / 52	29 / 58	31 / 64	34 / 71	36 / 78	38 / 85	40 / 93	42															
43											-25 / 5	-9 / 10	0 / 16	7 / 22	13 / 29	17 / 35	21 / 41	24 / 47	27 / 53	30 / 59	32 / 65	35 / 72	37 / 79	39 / 86	41 / 93	43															
44											-48 / 1	-17 / 7	-4 / 13	4 / 18	10 / 24	15 / 30	19 / 36	22 / 42	25 / 48	28 / 54	31 / 60	34 / 66	36 / 73	38 / 80	40 / 86	42 / 93	44														
45												-29 / 4	-10 / 9	0 / 15	7 / 20	12 / 26	17 / 31	20 / 37	24 / 43	27 / 49	30 / 55	32 / 61	35 / 67	37 / 73	39 / 80	41 / 86	43 / 93	45													
46													-19 / 6	-5 / 11	-2 / 17	3 / 22	9 / 27	14 / 33	18 / 39	22 / 45	25 / 50	28 / 56	31 / 62	34 / 68	36 / 74	39 / 80	42 / 87	44 / 93	46												
47													-33 / 3	-12 / 8	-1 / 13	6 / 18	12 / 23	16 / 29	20 / 34	24 / 40	27 / 46	30 / 51	32 / 57	35 / 63	37 / 69	39 / 74	41 / 81	43 / 87	45 / 93	47											
48														-20 / 5	-6 / 10	2 / 15	9 / 20	14 / 25	18 / 30	22 / 35	25 / 41	28 / 46	31 / 52	34 / 57	36 / 63	38 / 69	40 / 75	42 / 81	44 / 87	46 / 94	48									
49															-35 / 2	-13 / 7	-2 / 12	5 / 17	11 / 21	16 / 26	20 / 31	24 / 37	27 / 42	30 / 47	32 / 53	35 / 59	37 / 64	39 / 70	42 / 75	44 / 81	45 / 87	47 / 94	49							
50																-22 / 4	-7 / 9	2 / 13	8 / 18	14 / 22	18 / 28	22 / 33	25 / 39	28 / 42	31 / 48	34 / 53	36 / 59	38 / 64	41 / 70	43 / 75	45 / 82	46 / 88	48 / 94	50						
51																-39 / 2	-14 / 6	-3 / 10	5 / 15	11 / 20	16 / 24	20 / 29	24 / 34	27 / 39	30 / 44	33 / 49	35 / 54	37 / 60	40 / 65	42 / 71	44 / 76	46 / 82	48 / 88	49 / 94	51					
52																	-24 / 3	-8 / 8	1 / 12	8 / 17	13 / 22	18 / 27	22 / 32	25 / 37	28 / 42	31 / 48	34 / 53	36 / 58	39 / 64	41 / 69	43 / 75	45 / 81	47 / 87	49 / 92	50 / 98	52				
53																	-45 / 1	-16 / 6	-3 / 9	5 / 14	11 / 19	16 / 24	20 / 29	24 / 33	27 / 38	30 / 43	33 / 48	35 / 53	38 / 58	40 / 63	42 / 68	44 / 73	46 / 78	48 / 83	50 / 89	51 / 94	53			
54																		-27 / 3	-9 / 7	1 / 11	8 / 16	13 / 20	18 / 25	22 / 29	25 / 33	29 / 38	31 / 43	34 / 47	37 / 52	39 / 57	41 / 62	43 / 67	45 / 72	47 / 77	49 / 83	51 / 89	52 / 94	54		
55																		-53 / 1	-17 / 5	-4 / 8	4 / 12	11 / 17	16 / 21	20 / 26	24 / 30	27 / 34	30 / 39	33 / 43	36 / 48	38 / 53	40 / 57	42 / 62	44 / 67	46 / 72	48 / 78	50 / 83	52 / 89	53 / 94	55	
56																			-29 / 3	-10 / 5	0 / 10	6 / 14	13 / 19	18 / 23	22 / 28	26 / 33	29 / 38	32 / 43	34 / 48	37 / 53	39 / 58	41 / 63	44 / 68	46 / 73	47 / 78	49 / 83	51 / 89	52 / 94	54	56
57																				-19 / 4	-4 / 6	4 / 11	11 / 16	16 / 20	20 / 24	24 / 27	27 / 30	30 / 33	33 / 36	36 / 38	38 / 41	41 / 43	43 / 45	45 / 47	47 / 49	49 / 50	50 / 52	52 / 54	54 / 55	57	
58																				-31 / 2	-10 / 6	0 / 9	7 / 13	13 / 17	18 / 21	22 / 25	26 / 29	29 / 32	32 / 37	35 / 37	37 / 40	40 / 42	42 / 44	44 / 46	46 / 48	48 / 50	50 / 51	51 / 53	53 / 55	55 / 56	58
59																					-19 / 4	-5 / 7	4 / 11	11 / 14	16 / 18	20 / 22	24 / 26	26 / 30	31 / 34	34 / 38	36 / 42	39 / 47	41 / 51	43 / 55	45 / 60	47 / 65	49 / 69	51 / 74	53 / 79	54 / 84	56 / 89	59
60																					-32 / 3	-11 / 5	0 / 8	8 / 12	12 / 16	18 / 19	22 / 23	26 / 27	29 / 31	32 / 35	35 / 39	38 / 43	40 / 47	42 / 52	44 / 56	46 / 61	48 / 65	50 / 70	52 / 75	54 / 79	55 / 84	58

Elevations between 3,901 and 6,100 feet

Wet Bulb Temperatures 38 to 79 F
(Read Down)

Dry Bulb Temperatures 61 to 80 F
(Read Across)

	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	-19 / 3	-5 / 7	4 / 10	11 / 14	16 / 17	21 / 21	24 / 24	29 / 29	31 / 32	34 / 36	37 / 40	39 / 44	41 / 48	43 / 52	46 / 57	48 / 61	49 / 66	51 / 70	53 / 75	55 / 80	56 / 85	58 / 90	59 / 95
62	-33 / 1	-11 / 5	0 / 9	8 / 11	14 / 15	19 / 18	23 / 22	26 / 26	30 / 29	33 / 33	35 / 37	38 / 41	40 / 45	43 / 49	45 / 53	47 / 57	49 / 62	51 / 66	52 / 71	54 / 75	56 / 80	57 / 85	59 / 90
63	-19 / 3	-5 / 6	4 / 9	11 / 13	16 / 16	21 / 20	25 / 23		28 / 27	31 / 30	34 / 34	37 / 38	39 / 42	42 / 46	44 / 50	46 / 54	48 / 58	50 / 62	52 / 67	54 / 71	55 / 75	57 / 80	58 / 85
64	-34 / 1	-11 / 4	0 / 8	8 / 11	14 / 14	19 / 17	23 / 21		27 / 24	30 / 28	33 / 31	36 / 35	38 / 39	41 / 43	43 / 46	45 / 50	47 / 54	49 / 59	51 / 63	53 / 67	55 / 72	56 / 76	58 / 81
65	-19 / 3	-4 / 6	5 / 8	11 / 12	17 / 15	21 / 19			25 / 22	29 / 25	32 / 29	35 / 32	37 / 36	40 / 40	42 / 43	44 / 47	47 / 51	49 / 55	50 / 59	52 / 63	54 / 68	56 / 72	57 / 76
66	-33 / 1	-10 / 4	1 / 7	8 / 10	14 / 13	19 / 16			23 / 20	27 / 23	31 / 26	34 / 30	36 / 33	39 / 37	41 / 40	44 / 44	46 / 48	48 / 52	50 / 56	52 / 60	53 / 64	55 / 68	57 / 72
67	-19 / 3	-4 / 6	5 / 8	12 / 11	17 / 15				22 / 18	26 / 21	29 / 24	32 / 27	35 / 31	38 / 34	40 / 38	43 / 41	45 / 45	47 / 49	49 / 52	51 / 56	53 / 60	55 / 64	56 / 68
68	-32 / 1	-10 / 4	1 / 7	9 / 10	15 / 12				20 / 16	24 / 19	28 / 22	31 / 26	34 / 28	37 / 32	39 / 36	42 / 39	44 / 42	46 / 46	48 / 49	50 / 53	52 / 57	54 / 61	56 / 65
69				-18 / 3	-3 / 5	6 / 8	12 / 11		18 / 14	22 / 17	26 / 20	30 / 23	33 / 26	36 / 29	38 / 33	41 / 36	43 / 39	45 / 43	48 / 46	50 / 50	52 / 54	53 / 57	55 / 61
70				-31 / 1	-9 / 4	2 / 7	10 / 9		16 / 12	20 / 15	25 / 18	28 / 21	32 / 24	35 / 27	37 / 30	40 / 33	42 / 37	45 / 40	47 / 44	49 / 47	51 / 51	53 / 54	55 / 58
71					-17 / 3	-3 / 5	6 / 8		13 / 11	18 / 13	23 / 16	27 / 19	30 / 22	33 / 25	36 / 28	39 / 31	41 / 34	44 / 38	46 / 41	48 / 44	50 / 48	52 / 51	54 / 55
72					-29 / 1	-8 / 4	3 / 6		10 / 8	16 / 12	21 / 14	25 / 17	29 / 20	32 / 23	35 / 26	38 / 29	41 / 32	43 / 35	45 / 38	47 / 42	49 / 45	51 / 48	53 / 52
73						-15 / 3	-2 / 5		7 / 8	14 / 10	19 / 13	23 / 16	27 / 19	31 / 21	34 / 24	37 / 27	40 / 30	42 / 33	44 / 36	47 / 39	49 / 42	51 / 46	53 / 49
74						-26 / 1	-7 / 4		4 / 6	11 / 9	17 / 11	22 / 14	26 / 17	30 / 19	33 / 22	36 / 25	39 / 28	41 / 31	44 / 34	46 / 37	48 / 40	50 / 43	52 / 46
75						-52 / 1	-14 / 3		0 / 5	8 / 7	15 / 10	20 / 12	24 / 15	28 / 18	32 / 20	35 / 23	38 / 26	40 / 29	43 / 31	45 / 34	47 / 37	49 / 41	51 / 44
76							-24 / 2		5 / 4	5 / 6	12 / 9	18 / 11	22 / 13	27 / 16	30 / 19	33 / 21	36 / 24	39 / 27	42 / 28	44 / 32	47 / 35	49 / 38	51 / 41
77							-43 / 1		-12 / 3	1 / 5	9 / 7	15 / 10	21 / 12	25 / 14	29 / 17	32 / 19	35 / 22	38 / 25	41 / 27	43 / 30	46 / 33	48 / 36	50 / 39
78								-21 / 2	-4 / 4	6 / 6	13 / 8	19 / 11	23 / 13	27 / 15	31 / 18	34 / 20	37 / 23	40 / 26	43 / 29	45 / 31	47 / 34	49 / 37	51 / 40
79								-36 / 1	-10 / 3	2 / 5	10 / 7	16 / 9	21 / 12	26 / 14	30 / 16	33 / 19	36 / 21	39 / 24	42 / 26	44 / 29	46 / 32	49 / 35	51 / 37
80									-18 / 2	-2 / 4	7 / 6	14 / 8	20 / 10	24 / 13	28 / 15	32 / 17	35 / 20	38 / 22	41 / 25	43 / 27	46 / 30	48 / 32	50 / 35

	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
61																			
62	61 / 96																		
63	60 / 90	62 / 96																	
64	68 / 85	61 / 90	62 / 96																
65	59 / 81	61 / 86	62 / 90	64 / 96															
66	58 / 77	60 / 81	62 / 86	63 / 90	65 / 96														
67	58 / 73	60 / 77	61 / 81	63 / 86	64 / 90	68 / 96													
68	57 / 69	59 / 73	61 / 77	62 / 82	64 / 86	65 / 91	67 / 96												
69	57 / 65	59 / 69	60 / 73	62 / 78	63 / 82	65 / 86	66 / 91	68 / 96											
70	56 / 62	58 / 66	60 / 70	61 / 74	63 / 78	64 / 82	66 / 86	67 / 91	69 / 96										
71	56 / 58	57 / 62	59 / 66	61 / 70	62 / 74	64 / 78	65 / 82	67 / 87	68 / 91	70 / 96									
72	55 / 55	57 / 59	59 / 63	60 / 66	62 / 70	63 / 74	65 / 78	66 / 83	68 / 87	69 / 91	71 / 96								
73	55 / 52	56 / 56	58 / 59	60 / 63	61 / 67	63 / 71	64 / 75	66 / 79	67 / 83	69 / 87	70 / 91	72 / 96							
74	54 / 50	56 / 53	58 / 56	59 / 60	61 / 64	62 / 67	64 / 71	66 / 75	67 / 79	69 / 83	70 / 87	71 / 91	73 / 96						
75	53 / 47	55 / 50	57 / 53	59 / 57	60 / 60	62 / 64	64 / 68	65 / 71	67 / 75	68 / 79	70 / 83	71 / 87	72 / 91	74 / 96					
76	53 / 44	55 / 47	56 / 51	58 / 54	60 / 57	62 / 61	63 / 64	65 / 68	66 / 72	68 / 75	69 / 79	71 / 83	72 / 87	73 / 91	75 / 96				
77	52 / 42	54 / 45	56 / 48	58 / 51	59 / 55	61 / 58	63 / 61	64 / 65	66 / 69	67 / 72	69 / 76	70 / 80	72 / 83	73 / 87	74 / 92	76 / 96			
78	51 / 39	53 / 42	55 / 45	57 / 48	59 / 52	61 / 55	62 / 58	64 / 62	65 / 65	67 / 69	68 / 73	70 / 76	71 / 80	73 / 84	74 / 88	75 / 92	77 / 96		
79	51 / 37	53 / 40	55 / 43	57 / 46	58 / 49	60 / 52	62 / 6	63 / 59	65 / 62	66 / 66	68 / 69	69 / 73	71 / 76	72 / 80	74 / 84	75 / 88	76 / 92	78 / 96	
80	50 / 35	52 / 38	54 / 41	56 / 44	58 / 47	60 / 50	61 / 53	63 / 56	65 / 59	66 / 63	68 / 66	69 / 69	71 / 73	72 / 77	73 / 80	75 / 84	76 / 88	77 / 92	79 / 96

DP RH | DP RH

Elevations between 3,901 and 6,100 feet

Wet Bulb Temperatures 48 to 89 F (Read Down)

Dry Bulb Temperatures 81 to 100 F (Read Across)	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	-8 / 3	4 / 5	11 / 2	17 / 9	22 / 11	27 / 14	30 / 16	34 / 18	37 / 21	40 / 23	42 / 25	45 / 28	47 / 31	49 / 33	51 / 36	52 / 39	55 / 41	57 / 44	59 / 47	61 / 50	62 / 53	64 / 56	66 / 60	67 / 63	69 / 66	70 / 70	72 / 73	73 / 77	74 / 80	76 / 84	77 / 88	78 / 92	80 / 96
82	-15 / 2	-1 / 4	8 / 6	15 / 8	21 / 10	25 / 12	29 / 15	33 / 17	36 / 19	39 / 21	41 / 24	44 / 26	46 / 29	49 / 31	51 / 34	53 / 37	55 / 39	57 / 42	59 / 45	60 / 48	62 / 51	64 / 54	65 / 57	67 / 60	68 / 63	70 / 67	71 / 70	73 / 73	74 / 77	75 / 81	77 / 84	78 / 88	80 / 92
83	-26 / 1	-6 / 3	5 / 5	12 / 7	19 / 9	23 / 11	28 / 13	31 / 15	35 / 18	38 / 20	41 / 22	43 / 25	46 / 27	48 / 29	50 / 32	52 / 35	54 / 37	56 / 40	58 / 43	60 / 45	61 / 48	63 / 51	65 / 54	66 / 57	68 / 60	69 / 64	71 / 67	72 / 70	74 / 74	75 / 77	76 / 81	78 / 84	79 / 88
84	-49 /	-12 / 2	1 / 4	10 / 6	16 / 8	22 / 10	26 / 12	30 / 14	34 / 16	37 / 18	40 / 21	42 / 23	45 / 25	47 / 28	49 / 30	52 / 33	54 / 35	56 / 38	57 / 41	59 / 43	61 / 46	63 / 49	64 / 52	66 / 55	68 / 59	69 / 61	71 / 64	72 / 67	73 / 71	75 / 74	76 / 77	78 / 81	79 / 85
85		-21 / 1	-3 / 2	7 / 5	14 / 7	20 / 9	24 / 11	29 / 13	32 / 15	36 / 17	39 / 19	41 / 22	44 / 24	46 / 26	49 / 28	51 / 31	53 / 33	55 / 36	57 / 38	59 / 41	61 / 44	62 / 47	64 / 49	66 / 52	67 / 55	69 / 58	70 / 61	72 / 64	73 / 68	74 / 71	76 / 74	77 / 78	79 / 81
86			-9 / 2	3 / 4	11 / 6	18 / 8	23 / 10	27 / 12	31 / 14	34 / 16	38 / 18	40 / 20	43 / 22	46 / 25	48 / 27	50 / 29	52 / 32	54 / 34	56 / 36	58 / 39	60 / 42	62 / 44	63 / 47	65 / 50	67 / 53	68 / 56	70 / 59	71 / 62	73 / 65	74 / 68	76 / 71	77 / 74	78 / 78
87			-17 / 2	-1 / 3	8 / 5	15 / 7	21 / 9	26 / 11	30 / 13	33 / 15	36 / 17	39 / 19	42 / 21	45 / 23	47 / 26	50 / 28	52 / 30	54 / 33	56 / 35	58 / 37	60 / 40	61 / 42	63 / 45	65 / 48	66 / 50	68 / 53	69 / 56	71 / 59	72 / 62	74 / 65	75 / 68	77 / 71	78 / 75
88			-29 / 1	-6 / 2	5 / 4	13 / 6	19 / 8	24 / 10	28 / 12	32 / 13	35 / 15	38 / 17	41 / 20	44 / 22	46 / 24	49 / 26	51 / 28	53 / 31	55 / 33	57 / 35	59 / 38	61 / 40	63 / 43	64 / 46	66 / 48	67 / 51	69 / 54	71 / 56	72 / 59	73 / 62	75 / 65	76 / 68	78 / 72
89				-13 / 2	1 / 3	10 / 5	17 / 7	22 / 9	27 / 11	31 / 12	34 / 14	37 / 16	40 / 18	43 / 20	46 / 22	48 / 24	50 / 27	53 / 29	55 / 31	57 / 33	58 / 36	60 / 38	62 / 41	63 / 43	65 / 46	67 / 49	69 / 51	70 / 54	72 / 57	73 / 60	7 / 63	76 / 66	77 / 69
90				-22 / 1	-3 / 3	7 / 4	14 / 6	20 / 8	25 / 10	29 / 11	33 / 13	36 / 15	39 / 17	42 / 19	45 / 21	47 / 23	50 / 25	52 / 27	54 / 30	56 / 32	58 / 34	60 / 36	62 / 39	63 / 41	65 / 44	67 / 46	68 / 49	70 / 52	71 / 54	73 / 57	74 / 60	76 / 63	77 / 66
91					-40 / 2	-9 / 4	3 / 6	12 / 7	19 / 9	23 / 10	28 / 12	32 / 14	35 / 16	38 / 18	41 / 20	44 / 22	47 / 24	49 / 26	51 / 29	53 / 30	55 / 32	57 / 35	59 / 37	61 / 39	62 / 42	64 / 44	66 / 47	68 / 49	69 / 52	71 / 55	72 / 57	74 / 60	75 / 63	77 / 66
92						-17 / 1	-1 / 3	9 / 4	16 / 6	22 / 8	26 / 9	30 / 11	34 / 13	37 / 15	40 / 17	43 / 19	46 / 20	48 / 22	51 / 24	53 / 27	55 / 29	57 / 31	59 / 33	61 / 35	62 / 38	64 / 40	66 / 43	67 / 45	69 / 47	71 / 50	72 / 52	74 / 55	75 / 58	76 / 61
93							-29 / 1	-6 / 2	6 / 4	14 / 5	20 / 7	25 / 9	29 / 10	33 / 12	36 / 14	39 / 16	42 / 17	45 / 19	48 / 21	50 / 23	52 / 25	54 / 27	56 / 29	58 / 31	60 / 34	62 / 36	64 / 38	65 / 40	67 / 43	69 / 45	70 / 48	72 / 50	73 / 53	75 / 56	76 / 58
94								-12 / 2	2 / 3	11 / 5	18 / 6	23 / 8	28 / 9	32 / 11	35 / 13	38 / 14	41 / 16	44 / 18	47 / 20	49 / 22	51 / 24	54 / 26	56 / 28	58 / 30	60 / 32	61 / 34	63 / 36	65 / 39	67 / 41	68 / 43	70 / 46	71 / 48	73 / 51	74 / 53	76 / 56
95									-22 / 1	-3 / 2	8 / 4	15 / 5	21 / 7	26 / 9	30 / 10	34 / 12	37 / 14	40 / 15	43 / 17	46 / 19	49 / 21	51 / 22	53 / 24	55 / 26	57 / 28	59 / 30	61 / 33	63 / 35	65 / 37	66 / 39	68 / 41	69 / 44	71 / 46	73 / 49	74 / 51	76 / 54
96										-29 / 2	-8 / 3	4 / 5	13 / 6	19 / 8	24 / 9	29 / 11	33 / 12	36 / 14	40 / 16	42 / 18	45 / 19	48 / 21	50 / 23	52 / 25	55 / 27	57 / 29	59 / 31	60 / 33	62 / 35	64 / 37	66 / 40	67 / 42	69 / 44	71 / 47	72 / 49	74 / 51
97											-16 / 1	0 / 3	10 / 4	17 / 5	23 / 7	27 / 8	32 / 10	35 / 12	39 / 13	42 / 15	44 / 17	47 / 18	49 / 20	52 / 22	54 / 24	56 / 26	58 / 28	60 / 30	62 / 32	64 / 34	65 / 36	67 / 38	69 / 40	70 / 42	72 / 45	73 / 47
98												-27 / 1	-4 / 2	7 / 3	15 / 5	21 / 6	26 / 8	30 / 9	34 / 11	37 / 12	41 / 14	44 / 16	46 / 17	49 / 19	51 / 21	53 / 23	55 / 24	58 / 26	59 / 28	61 / 30	63 / 32	65 / 34	67 / 36	68 / 38	70 / 41	72 / 43
99													-54 /	-10 / 1	3 / 3	12 / 4	19 / 6	24 / 7	29 / 8	33 / 10	36 / 11	40 / 13	43 / 15	45 / 16	48 / 18	50 / 20	53 / 21	55 / 23	57 / 25	59 / 27	61 / 29	63 / 31	65 / 33	66 / 35	68 / 38	70 / 40	71 / 43
100														-13 / 1	-1 / 2	9 / 4	17 / 5	22 / 6	27 / 8	32 / 9	35 / 11	39 / 12	42 / 14	45 / 15	47 / 17	50 / 19	52 / 20	54 / 22	56 / 24	58 / 26	60 / 27	62 / 29	64 / 31	66 / 33	68 / 35	69 / 37	71 / 39

Dry Bulb Temperatures 81 to 100 F (Read Across)	81	82	83	84	85	86	87	88	89	90
81	80 / 96									
82	80 / 96	82								
83	80 / 92	83								
84	80 / 92	83 / 96	84							
85	80 / 81	82 / 89	84 / 92	85						
86	80 / 81	82 / 85	83 / 89	85 / 92	86					
87	79 / 81	82 / 82	83 / 85	85 / 89	86 / 92	87				
88	79 / 80	82 / 79	83 / 82	84 / 85	86 / 89	87 / 92	88			
89	79 / 80	81 / 79	83 / 78	84 / 82	85 / 85	87 / 89	88 / 92	89		
90	78 / 80	81 / 79	82 / 78	84 / 82	85 / 85	86 / 89	88 / 92	89 / 96	90	
91	78 / 80	81 / 79	82 / 78	84 / 82	85 / 85	86 / 89	87 / 92	89 / 96	90 / 96	
92	78 / 79	81 / 79	82 / 78	83 / 82	85 / 85	86 / 89	87 / 92	89 / 96	90 / 96	
93	78 / 79	80 / 79	82 / 78	83 / 82	84 / 85	86 / 89	87 / 92	89 / 96	89 / 96	
94	77 / 79	80 / 79	81 / 78	83 / 82	84 / 85	85 / 89	87 / 92	89 / 96	89 / 96	
95	77 / 78	80 / 79	81 / 78	82 / 82	84 / 85	86 / 89	87 / 92	89 / 96	89 / 96	
96	77 / 78	80 / 79	81 / 78	82 / 82	84 / 85	86 / 89	87 / 92	89 / 96	89 / 96	
97	76 / 78	79 / 79	81 / 78	82 / 82	83 / 85	86 / 89	87 / 92	89 / 96	89 / 96	
98	76 / 78	79 / 79	80 / 78	82 / 82	83 / 84	86 / 89	87 / 92	89 / 96	89 / 96	
99	76 / 77	79 / 79	80 / 78	81 / 82	83 / 84	85 / 89	87 / 92	89 / 96	89 / 96	
100	76 / 77	79 / 79	80 / 78	81 / 82	83 / 84	85 / 89	87 / 92	89 / 96	89 / 96	

DP / RH — DP / RH

Elevations between 3,901 and 6,100 feet

Wet Bulb Temperatures, 55 to 90 F

(Read Down)

Dry Bulb Temperatures 101 to 119 F (Read Across)	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
101	-33	-6	6	14	21	26	30	34	38	41	44	46	49	51	54	56	58	60	62	64	65	67	69	70	72	74	75	77	78	79	81	82	84	85	86	88
		2	3	4	5	7	8	10	11	13	14	16	18	19	21	23	24	26	28	30	32	34	36	38	40	42	44	46	49	51	53	56	58	61	63	66
102		-13	2	12	19	24	29	33	37	40	43	46	48	51	53	55	57	59	61	63	65	67	68	70	72	73	75	76	78	79	81	82	83	85	86	87
		1	2	4	5	6	8	9	11	12	13	15	17	18	20	21	23	25	27	28	30	32	34	36	38	40	42	44	47	49	51	54	56	59	61	64
103		-22	-2	9	16	22	27	32	35	39	42	45	48	50	52	55	57	59	61	63	65	66	68	70	71	73	74	76	77	79	80	82	83	84	86	87
		1	2	3	4	6	7	8	10	11	13	14	16	17	19	20	22	24	25	27	29	31	33	35	37	39	41	43	45	47	49	52	54	56	59	61
104		-29	-7	5	14	20	26	30	34	38	41	44	47	49	52	54	56	58	60	62	64	66	68	69	71	73	74	76	77	79	80	81	83	84	86	87
			1	3	4	5	6	8	9	10	12	13	15	16	18	19	21	23	24	26	28	29	31	33	35	37	39	41	43	45	47	50	52	54	57	59
105			-14	2	11	18	24	29	33	37	40	43	46	49	51	53	56	58	60	62	64	65	67	69	71	72	74	76	77	78	80	81	83	84	85	87
			1	2	3	5	6	7	9	10	11	12	14	15	17	18	20	21	23	25	26	28	30	32	34	36	37	39	41	44	46	48	50	52	55	57
106			-26	-3	8	16	22	27	32	36	39	42	45	48	50	53	55	57	59	61	63	65	67	69	70	72	73	75	77	78	80	81	82	84	85	86
			1	2	3	4	5	6	8	9	10	12	13	14	16	17	19	20	22	24	25	27	29	30	32	34	36	38	40	42	44	46	48	50	53	55
107			-47	-8	5	14	20	26	30	35	38	41	44	47	50	52	54	57	59	61	63	65	66	68	70	72	73	75	76	78	79	81	82	83	85	86
				1	2	4	5	6	7	8	10	11	12	14	15	17	18	19	21	23	24	26	27	29	31	33	35	36	38	40	42	44	46	49	51	55
108				-16	1	11	18	24	29	33	37	40	44	46	49	52	54	56	58	60	62	64	66	68	69	71	73	74	76	77	79	80	82	83	85	86
				1	2	3	4	5	7	8	9	10	12	13	14	16	17	19	20	22	23	25	26	28	30	31	33	35	37	39	41	43	45	47	49	51
109				-27	-3	8	16	23	28	32	36	39	43	46	48	51	53	56	58	60	62	64	66	67	69	71	72	74	76	77	79	80	82	83	84	86
					2	3	4	5	6	7	8	10	11	12	13	15	16	18	19	21	22	24	25	27	28	30	32	34	35	37	39	41	43	45	47	49
110					-9	5	14	21	26	31	35	38	42	45	48	50	53	55	57	59	61	63	65	67	69	70	72	74	75	77	78	80	81	83	84	85
					1	2	3	4	5	7	8	9	10	11	13	14	16	17	18	20	21	23	24	26	27	29	31	32	34	36	38	40	41	43	45	47
111						-17	1	11	19	24	29	34	37	41	44	47	49	52	54	57	59	61	63	65	67	68	70	72	73	75	77	78	80	81	82	84	85
						1	2	3	4	5	6	7	8	10	11	12	13	15	16	17	19	20	22	23	25	26	28	29	31	33	34	36	38	40	42	44	46
112						-29	-4	9	16	23	28	32	36	40	43	46	49	51	54	56	58	60	62	64	66	68	70	71	73	75	76	78	79	81	82	84	85
							1	2	3	4	6	7	8	9	10	11	13	14	15	16	18	19	21	22	24	25	27	28	30	31	33	35	37	39	42	44
113							-10	5	14	21	26	31	35	39	42	45	48	51	53	55	58	60	62	64	66	68	69	71	73	74	76	77	79	80	82	83	85
							1	2	3	4	5	6	7	8	10	11	12	13	14	16	17	18	20	21	23	24	26	27	29	30	32	34	35	37	39	41	43
114							-18	1	11	19	25	30	34	38	41	44	47	50	53	55	57	59	61	63	65	67	68	71	72	74	76	77	79	80	82	83	85
							1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	19	20	22	23	24	26	27	29	31	32	34	36	37	39	41
115							-31	-4	8	17	23	28	33	37	40	44	47	49	52	54	57	59	61	63	65	67	69	70	72	74	75	77	78	80	81	83	84
								1	2	3	4	5	6	7	8	9	11	12	13	14	15	17	18	19	21	22	23	25	26	28	29	31	33	34	36	38	40
116								-10	5	14	21	27	32	36	39	43	46	49	51	54	56	58	60	62	64	66	68	70	72	73	75	77	78	80	81	83	84
								1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	20	21	23	24	25	27	28	30	31	33	35	36	38
117								-18	1	12	19	25	30	35	38	42	45	48	51	53	55	58	60	62	64	66	68	70	71	73	75	76	78	79	81	82	84
								1	1	2	3	4	5	6	7	8	9	11	12	13	14	15	16	18	19	20	22	23	24	26	27	29	30	32	33	35	37
118									-31	-3	9	17	24	29	33	37	41	44	47	50	52	55	57	59	62	64	65	67	69	71	73	74	76	78	79	81	82	84
										1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	17	18	19	21	22	23	25	26	28	29	31	32	34
119										-5	6	15	22	27	32	36	40	43	46	49	52	54	57	59	61	63	65	67	69	71	72	74	76	77	79	80	82	83
										1	2	3	4	5	6	7	8	9	10	12	13	14	15	16	17	19	20	21	22	24	25	27	28	30	31	33	34

DP RH | DP RH

Elevations between 6,101 and 8,500 feet

Wet Bulb Temperatures

20 to 50 F

(Read Down)

Dry Bulb Temperatures

31 to 50 F

(Read Across)

DP	DP
RH	RH

	20	21	22	23	24	25	26	27	28	29	30																			
31	-29 6	-13 14	-4 22	3 30	8 38	13 46	17 55	20 63	23 72	26 81	28 90	31																		
32	-57 1	-21 9	-9 16	-1 24	5 32	10 40	14 48	18 56	21 64	24 73	27 82	30 91	32																	
33	-36 4	-16 11	-5 19	2 26	7 34		12 41	16 49	20 57	23 66	26 74	28 83	31 92	33																
34	-20 6	-11 13	-2 21	4 28			10 36	14 43	18 51	21 59	24 67	27 75	30 84	32 92	34															
35	-44 2	-19 9	-7 16	1 23			7 30	12 37	16 45	19 52	23 60	26 68	28 76	31 84	33 92	35														
36		-31 4	-13 11	-4 18			3 25	9 32	13 39	17 46	21 54	24 61	27 69	29 77	32 84	34 92	36													
37			-22 7	-9 13			0 20	6 27	11 34	15 41	19 48	22 55	25 63	28 70	31 77	33 85	35 92	37												
38			-37 2	-16 9			-5 16	3 22	8 29	13 35	17 42	21 49	24 57	27 64	29 71	32 78	34 85	36 92	38											
39				-26 5	-10 11	-1 18	4 24	11 31	15 37	19 44	22 51	25 58	28 64	30 71	33 78	35 85	37 93	39											
40				-45 2	-18 8	-6 14	2 20	8 26	13 32	17 39	21 46	24 52	27 58	29 65	32 72	34 79	36 86	38 93	40										
41					-29 4	-12 10	-2 16	6 22	10 29	15 34	19 41	22 47	25 53	28 59	30 66	33 72	35 79	37 86	39 93	41									
42					-57 1	-20 6	-7 12	1 18	8 24	13 30	17 36	20 42	24 48	27 54	29 60	32 66	34 73	36 80	38 86	40 93	42								
43						-33 3	-13 9	-3 14	4 20	10 26	15 31	19 37	22 43	25 49	28 55	30 61	33 67	35 73	37 80	39 86	41 93	43							
44							-22 5	-8 11	1 16	7 22	12 27	17 33	20 38	24 44	26 50	29 56	32 62	34 68	36 74	38 80	40 87	42 93	44						
45							-37 2	-14 7	-3 12	4 18	10 24	15 29	18 34	22 40	25 45	28 51	31 57	33 62	35 68	37 74	39 81	41 87	43 93	45					
46								-24 4	-9 9	0 15	7 20	12 25	16 30	20 35	23 41	26 46	29 52	32 57	34 63	36 69	39 75	41 81	42 87	44 94	46				
47								-41 2	-15 7	-4 12	4 17	10 21	14 26	18 31	22 37	25 42	28 47	31 53	33 58	35 64	38 70	40 75	42 81	43 87	45 94	47			
48									-25 4	-9 9	0 13	7 18	12 22	16 28	20 33	23 38	27 43	29 48	32 53	34 59	37 64	39 70	41 76	43 82	45 88	46 94	48		
49									-45 1	-16 6	-4 11	3 15	9 20	14 24	18 29	22 34	25 39	28 44	31 49	33 54	36 60	38 65	40 71	42 76	44 82	46 88	47 94	49	
50										-26 3	-9 8	0 12	6 17	12 21	16 26	20 30	24 35	27 40	29 45	32 50	35 55	37 60	39 66	41 71	43 77	45 82	47 88	48 94	50

Elevations between 6,101 and 8,500 feet

Wet Bulb Temperatures

31 to 70 F

(Read Down)

Dry Bulb Temperatures

51 to 70 F

(Read Across)

	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
51	-44 / 1	-16 / 5	-5 / 10	3 / 14	9 / 18	14 / 23	18 / 27	22 / 32	25 / 36	28 / 41	31 / 46	33 / 51	36 / 56	38 / 61	40 / 66	42 / 72	44 / 77	46 / 83	48 / 88	49 / 94	51
52	-27 / 3	-10 / 7	-1 / 11	6 / 15	12 / 20	16 / 24	20 / 29	24 / 33	27 / 37	30 / 42	32 / 47	35 / 52	37 / 57	39 / 62	41 / 67	43 / 72	45 / 77	47 / 83	49 / 88	50 / 94	52
53	-50 / 1	-18 / 5	-5 / 9	3 / 13	9 / 17	14 / 21	18 / 25	22 / 30	25 / 34	29 / 38	31 / 43	34 / 48	36 / 52	38 / 57	40 / 62	42 / 67	44 / 72	46 / 78	48 / 83	50 / 89	51 / 94	53
54	-29 / 2	-11 / 6	-1 / 10	4 / 14	12 / 18	16 / 22	20 / 26	24 / 31	27 / 35	30 / 39	33 / 44	35 / 49	37 / 53	40 / 58	42 / 63	44 / 68	46 / 73	47 / 78	49 / 83	51 / 88	52 / 94	54
55	-57	-19 / 4	-6 / 9	3 / 12	9 / 16	14 / 20	18 / 24	22 / 28	25 / 32	29 / 36	31 / 40	34 / 45	36 / 49	39 / 54	41 / 59	43 / 64	45 / 69	47 / 73	48 / 79	50 / 84	52 / 89	53 / 94	55
56		-30 / 2	-11 / 6	-1 / 9	4 / 13	12 / 17	16 / 21	21 / 25	24 / 29	27 / 33	30 / 37	33 / 41	36 / 46	38 / 50	40 / 55	42 / 59	44 / 64	46 / 69	48 / 74	50 / 79	51 / 84	53 / 89	54 / 95	56
57			-19 / 4	-6 / 7	3 / 11	9 / 15	14 / 19	19 / 22	22 / 26	25 / 30	29 / 34	32 / 38	34 / 43	37 / 47	39 / 51	41 / 55	43 / 60	45 / 65	47 / 69	49 / 74	51 / 79	52 / 84	54 / 89	55 / 95	57
58				-22 / 2	-12 / 5	-1 / 9	6 / 12	12 / 16	17 / 20	21 / 23	24 / 27	28 / 31	31 / 36	33 / 39	36 / 43	38 / 47	40 / 52	42 / 56	44 / 61	46 / 65	48 / 70	50 / 75	52 / 79	53 / 84	55 / 90	56 / 95	58
59					-20 / 3	-6 / 7	3 / 10	9 / 14	15 / 17	19 / 21	23 / 25	26 / 29	29 / 32	32 / 36	35 / 40	37 / 44	39 / 48	42 / 52	44 / 57	46 / 61	48 / 66	49 / 70	51 / 75	53 / 80	54 / 85	56 / 90	58 / 95	59
60					-32 / 2	-12 / 5	-1 / 8	6 / 12	12 / 15	17 / 18	21 / 22	25 / 26	28 / 29	31 / 33	34 / 37	36 / 41	39 / 45	41 / 49	43 / 53	45 / 57	47 / 62	49 / 66	50 / 71	52 / 75	54 / 80	55 / 85	57 / 89	59 / 95	60
61						-20 / 3	-4 / 6	3 / 10	10 / 13	15 / 16	19 / 20	23 / 23	27 / 27	30 / 30	33 / 34	35 / 38	38 / 42	40 / 46	42 / 50	44 / 54	46 / 58	48 / 62	50 / 67	52 / 71	53 / 76	55 / 80	56 / 85	58 / 90	60 / 95	61
62						-32 / 2	-11 / 5	-1 / 8	7 / 11	13 / 14	17 / 17	21 / 21	25 / 24	28 / 28	31 / 31	34 / 35	37 / 39	39 / 43	41 / 46	43 / 50	45 / 54	47 / 59	49 / 63	51 / 67	52 / 72	54 / 76	56 / 81	58 / 85	59 / 90	61 / 95	62
63							-19 / 3	-5 / 6	4 / 9	10 / 12	15 / 15	20 / 19	24 / 22	27 / 26	30 / 29	33 / 32	36 / 36	38 / 40	40 / 43	43 / 47	45 / 51	47 / 55	49 / 59	50 / 63	52 / 68	54 / 72	55 / 76	57 / 81	59 / 85	60 / 90	62 / 95	63
64							-32 / 1	-11 / 4	0 / 7	7 / 10	13 / 13	18 / 17	22 / 20	26 / 23	29 / 26	32 / 30	35 / 33	37 / 37	40 / 40	42 / 44	44 / 48	46 / 52	48 / 56	50 / 60	52 / 64	53 / 68	55 / 72	57 / 77	58 / 81	60 / 86	61 / 90	63 / 95	64
65								-19 / 3	-5 / 6	4 / 9	11 / 12	16 / 15	20 / 18	24 / 21	28 / 24	31 / 27	34 / 31	36 / 34	39 / 38	41 / 41	43 / 45	45 / 49	47 / 52	49 / 56	51 / 60	53 / 64	54 / 68	56 / 72	58 / 77	59 / 81	61 / 86	62 / 90	64 / 95	65
66									-31 / 1	-10 / 4	0 / 7	8 / 10	14 / 13	19 / 16	22 / 19	26 / 22	29 / 25	32 / 28	35 / 32	38 / 35	40 / 39	42 / 42	44 / 46	46 / 49	48 / 53	50 / 57	52 / 61	54 / 65	55 / 69	57 / 73	59 / 77	60 / 82	62 / 86	63 / 91	65 / 95	66
67										-19 / 3	-4 / 4	5 / 8	11 / 11	16 / 14	21 / 17	25 / 20	28 / 23	31 / 26	34 / 29	37 / 33	39 / 36	41 / 39	44 / 43	46 / 46	48 / 50	50 / 54	51 / 57	53 / 61	55 / 65	57 / 69	58 / 73	60 / 78	61 / 82	63 / 86	64 / 91	66 / 95	67
68										-29 / 1	-9 / 4	1 / 7	8 / 10	14 / 12	19 / 15	23 / 18	27 / 21	30 / 24	33 / 27	34 / 30	38 / 33	41 / 37	43 / 40	45 / 44	47 / 47	49 / 51	51 / 54	53 / 58	54 / 62	56 / 66	58 / 70	59 / 74	61 / 78	62 / 82	64 / 86	65 / 91	67 / 95	68
69											-54	-16 / 3	-3 / 5	5 / 8	12 / 11	17 / 13	21 / 16	25 / 19	29 / 22	32 / 25	35 / 28	37 / 31	40 / 34	42 / 38	44 / 41	46 / 44	48 / 48	50 / 51	52 / 55	54 / 58	56 / 62	57 / 66	59 / 70	60 / 74	62 / 78	63 / 82	65 / 87	66 / 91	68 / 95	69
70												-27 / 2	-8 / 4	2 / 7	9 / 9	5 / 12	20 / 15	24 / 17	27 / 20	31 / 23	34 / 26	36 / 29	39 / 32	41 / 35	43 / 38	46 / 42	48 / 45	50 / 48	51 / 52	53 / 55	55 / 59	57 / 63	59 / 66	60 / 70	61 / 74	63 / 78	64 / 82	66 / 87	67 / 91	69 / 95	70

DP	DP
RH	RH

Elevations between 6,101 and 8,500 feet

Wet Bulb Temperatures

42 to 81 F

(Read Down)

Dry Bulb Temperatures

71 to 90 F

(Read Across)

DP	DP
RH	RH

	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
71	-15 3	-2 5	4 8	10 10	18 13	22 16	26 18	29 21	32 24	35 27	38 30	40 33	43 34	45 39	47 42	49 46	51 49	53 52	54 56	56 58	58 60	59 67	61 71	63 75	64 79	65 83	67 87	69 91	70 96																
72	-25 2	-7 4	3 6	10 9	16 11	20 14	24 17	28 19	31 22	34 25	37 29	39 31	42 34	44 37	46 40	48 43	50 46	52 50	54 53	56 56	57 60	59 64	61 67	62 71	64 75	65 79	67 83	68 87	69 91	71 96														
73	-43 1	-13 3	-1 5	7 8	13 10	18 13	23 15	27 18	30 20	33 23	36 26	39 29	41 32	43 34	46 37	48 41	50 44	52 47	53 50	55 53	56 57	58 60	60 64	62 68	63 71	65 75	66 79	68 83	69 87	70 91	72 96													
74	-22 2	-6 4	4 6	11 9	16 11	21 14	25 16	29 19	32 21	35 24	38 27	40 29	43 32	45 35	47 38	49 41	51 44	53 47	55 51	56 54	58 57	60 61	61 64	63 68	64 72	66 75	67 79	69 83	70 87	71 91	73 96													
75	-37 1	-12 3	0 5	8 7	14 10	19 12	24 15	27 17	31 20	34 22	37 25	39 28	42 30	44 33	46 36	48 39	50 42	52 45	54 48	56 51	58 55	59 58	61 61	62 65	64 68	65 72	67 76	68 80	70 85	71 87	72 91	74 96												
76		-19 2	-4 4	5 6	12 9	17 11	22 13	26 16	29 18	32 21	35 23	38 26	39 29	41 31	43 34	45 37	48 40	50 43	52 46	53 49	55 52	57 55	59 59	60 62	62 65	63 69	65 72	66 76	68 80	69 84	71 88	72 92	73 96												
77		-22 1	-10 3	2 5	9 7	15 10	20 12	24 14	28 17	32 19	35 21	37 24	40 26	42 29	45 32	47 35	49 37	51 40	53 43	55 46	56 49	58 52	60 55	61 59	63 62	65 66	66 69	68 73	69 78	70 80	72 84	73 88	74 92	76 96											
78			-17 2	-3 4	4 6	13 8	18 11	23 13	27 15	30 17	33 20	34 22	39 25	42 27	44 30	46 33	48 35	50 38	52 41	54 44	56 47	58 50	59 53	61 56	63 59	64 63	66 66	67 69	68 72	70 76	71 80	73 84	74 88	75 92	77 96										
79			-27 1	-8 3	3 5	11 7	16 9	21 12	25 14	29 16	32 18	35 21	38 23	41 26	43 28	45 31	48 33	50 36	52 39	54 41	55 44	57 47	59 50	61 53	62 56	64 60	65 63	67 66	68 70	70 73	71 77	72 80	74 84	76 88	78 92	79 96									
80				-52 2	-14 4	-1 6	8 8	14 8	19 10	24 12	28 15	31 17	34 19	37 22	40 24	42 26	45 29	47 31	49 34	51 37	53 39	55 42	57 45	59 48	60 51	62 54	63 57	65 60	66 63	68 67	69 70	71 73	72 77	73 81	75 84	76 88	77 92	79 96	80						
81					-21 1	-3 3	5 5	12 7	17 9	22 11	26 13	30 16	33 19	36 20	39 22	42 26	44 27	46 30	48 32	50 35	52 37	54 40	56 43	58 45	60 48	61 51	63 54	64 57	66 60	68 64	69 67	70 70	72 74	73 77	75 81	76 84	77 88	78 92	80 96	81						
82					-40 1	-11 2	1 4	9 6	15 8	20 10	25 12	29 14	32 16	36 18	38 21	41 23	43 25	46 28	48 30	50 33	52 35	54 38	56 41	57 43	59 46	61 49	62 52	64 55	66 58	67 61	69 64	70 67	71 71	73 74	74 78	76 81	77 85	78 88	79 92	81 96	82					
83						-19 2	-3 3	4 5	10 7	15 9	19 11	23 13	27 15	31 17	34 19	37 22	40 24	42 26	45 29	47 31	49 33	51 36	53 38	55 41	57 44	59 47	60 49	62 52	64 55	65 58	67 61	68 64	70 67	71 71	73 74	74 78	76 81	77 85	78 88	79 92	80 96	82	83				
84							-31 1	-8 3	2 4	11 6	17 8	22 10	26 12	30 14	33 16	36 18	39 20	42 22	44 25	46 27	49 29	51 32	53 34	55 37	56 39	58 42	60 44	62 47	63 50	65 53	66 56	68 59	69 62	71 65	72 68	74 71	75 74	76 78	77 81	79 85	79 88	80 92	82 96	83	84			
85								-45 2	-1 4	8 6	14 7	20 9	24 11	28 13	32 15	35 17	38 19	41 21	43 23	46 25	49 28	50 30	52 32	54 35	56 37	58 40	59 43	61 45	63 48	64 50	66 53	68 56	69 59	70 62	72 65	73 68	75 71	76 75	77 78	79 81	80 85	81 89	83 92	84 96	85			
86									-25 1	-6 3	5 4	12 6	18 8	22 10	27 12	31 14	34 16	37 18	40 20	42 22	43 24	47 26	49 28	51 31	53 33	55 35	57 38	59 40	61 43	62 45	64 48	66 51	67 54	69 56	70 59	72 62	73 65	74 68	76 72	77 75	78 79	80 82	81 85	82 89	84 92	85 96			
87										-44 2	-12 4	1 6	9 8	16 7	21 9	26 11	29 13	33 14	36 16	39 18	42 20	44 22	46 25	49 27	51 29	53 31	55 33	57 36	59 39	60 41	62 43	64 46	65 49	67 51	68 54	70 57	71 60	73 63	74 66	75 69	77 72	78 75	79 79	81 82	82 85	83 89	85 92			
88											-29 1	-3 3	7 5	14 6	19 8	24 10	28 12	32 13	35 15	38 17	41 19	43 21	46 23	48 25	50 27	52 30	54 32	56 34	58 36	60 39	62 41	63 44	65 46	66 49	68 52	69 54	71 57	72 60	73 63	75 66	76 69	78 72	79 75	81 79	82 82	83 85	84 89			
89												-33 1	-8 2	2 4	8 5	17 7	21 9	27 11	30 12	34 14	37 16	40 18	43 20	45 22	47 24	50 26	52 29	54 31	56 33	58 35	59 37	61 39	63 42	64 44	66 47	68 49	69 52	71 55	72 58	73 61	75 64	76 67	78 70	79 73	80 76	81 79	83 82	84 86			
90													-15 2	-1 3	6 5	15 6	21 8	25 10	29 11	33 13	36 15	39 17	42 19	44 21	47 22	49 25	51 27	53 29	55 31	57 33	59 35	61 38	62 40	64 42	66 45	67 48	69 50	70 53	72 56	73 59	75 62	76 65	77 68	79 71	80 75	81 78	83 81	84 82			

Elevations between 6,101 and 8,500 feet

Wet Bulb Temperatures, 50 to 85 F

(Read Down)

Dry Bulb Temperatures 91 to 109 F (Read Across)	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
91	-25	-5	5	13	19	24	28	32	35	38	41	43	46	48	50	53	55	57	58	60	62	64	65	67	69	70	71	73	74	76	77	78	80	81	82	84
	1	2	4	5	7	9	10	12	14	16	17	19	21	23	25	27	29	31	34	36	38	40	43	45	48	50	53	56	58	61	64	67	70	73	76	79
92	-44	-11	2	10	17	22	27	30	34	37	40	43	45	48	50	52	54	56	58	60	61	63	65	66	68	70	71	73	74	76	77	78	79	81	82	83
		2	3	5	6	8	10	11	13	15	16	18	20	22	24	26	28	30	32	34	36	38	41	43	46	48	51	53	56	58	61	64	67	70	73	76
93		-18	-2	6	15	20	25	29	33	36	39	42	44	47	49	51	53	55	57	59	61	63	64	66	68	69	71	72	74	75	76	78	79	81	82	83
		1	3	4	6	7	9	10	12	14	15	17	19	21	23	24	26	28	30	33	35	37	39	41	44	46	49	51	54	56	59	62	64	67	70	73
94		-31	-7	4	12	18	23	28	32	35	38	41	44	46	49	51	53	55	57	59	61	62	64	66	67	69	70	72	73	75	76	78	79	80	82	83
		1	2	3	5	6	8	9	11	13	14	16	18	20	21	23	25	27	29	31	33	35	37	40	42	44	47	49	51	54	57	59	62	65	68	71
95			-13	1	10	16	22	26	30	34	37	40	43	45	48	50	52	54	56	58	60	62	64	65	67	69	70	72	73	75	76	77	79	80	81	83
			1	3	4	6	7	9	10	12	13	15	17	18	20	22	24	26	28	30	32	34	36	38	40	42	45	47	49	52	54	57	60	62	65	68
96			-22	-3	7	14	20	25	29	33	36	39	42	45	47	50	52	54	56	58	60	61	63	65	67	68	70	71	73	74	76	77	78	80	81	82
			1	2	4	5	6	8	9	11	12	14	16	17	19	21	23	24	26	28	30	32	34	36	38	41	43	45	47	50	53	55	57	60	63	65
97			-38	-9	4	12	18	23	28	32	35	38	41	44	46	49	51	53	55	57	59	61	63	64	66	68	69	71	72	74	75	77	78	80	81	82
				2	3	4	6	7	9	10	12	13	15	16	18	20	21	23	25	27	29	31	33	35	37	39	41	43	45	48	50	53	55	58	60	63
98				-16	0	3	16	22	26	30	34	37	40	43	46	48	50	53	55	57	59	61	62	64	66	67	69	71	75	74	76	76	78	79	81	82
				1	2	4	5	6	8	9	11	12	14	15	17	19	20	22	24	26	27	29	31	33	35	37	39	41	44	46	48	51	53	55	58	60
99				-26	-5	4	14	20	25	29	33	36	39	42	45	48	50	52	54	56	58	60	62	64	65	67	69	70	72	73	75	76	78	79	80	81
				1	2	3	4	6	7	9	10	11	13	14	16	18	19	21	23	24	26	28	30	32	34	36	38	40	42	44	46	49	51	53	56	58
100					-47	-10	3	11	18	23	28	32	35	38	42	44	47	49	51	54	56	58	60	61	63	65	67	68	70	71	73	74	76	77	79	80	81
						1	3	4	5	7	8	9	11	12	14	15	17	18	20	21	23	25	27	28	30	32	34	36	38	40	42	44	47	49	51	54	56
101						-18	-1	9	16	22	26	31	34	38	41	43	46	49	51	53	55	57	59	61	63	65	66	68	70	71	73	74	75	77	78	80	81
						1	2	3	5	6	7	8	10	11	13	14	16	17	19	20	22	24	25	27	29	31	33	35	37	39	41	43	45	47	49	52	54
102						-29	-4	6	14	20	25	29	33	37	40	43	45	48	50	53	55	57	59	61	62	64	66	68	69	71	72	74	75	77	78	80	81
							2	3	4	5	7	8	9	11	12	13	15	16	18	19	21	23	24	26	28	29	31	33	35	37	39	41	43	45	47	50	52
103							-12	2	11	18	23	28	32	36	39	42	45	47	50	52	54	56	58	60	62	64	66	67	69	70	72	74	75	76	78	79	81
							1	2	4	5	6	7	9	10	11	13	14	15	17	18	20	22	23	25	26	28	30	32	34	35	37	39	41	43	46	48	50
104							-20	-2	9	16	22	27	31	35	38	41	44	46	49	51	54	56	58	60	62	63	65	67	68	70	72	73	75	76	78	79	80
							1	2	3	4	5	7	8	9	10	12	13	15	16	17	19	20	22	24	25	27	29	30	32	34	36	38	40	42	44	46	48
105							-33	-6	6	14	20	25	30	33	37	40	43	44	48	51	53	55	57	59	61	63	65	66	68	70	71	73	74	76	77	79	80
								1	3	4	5	6	7	9	10	11	12	14	15	17	18	20	21	23	24	26	27	29	31	33	34	36	38	40	42	44	46
106								-13	2	11	18	24	28	32	36	39	42	45	48	50	52	55	57	59	61	63	64	66	68	69	71	73	74	76	77	79	80
								1	2	3	4	6	7	8	9	10	12	13	14	16	17	19	20	22	23	25	26	28	30	31	33	35	37	39	41	43	45
107								-21	-2	9	16	22	27	31	35	38	41	44	47	49	52	54	56	58	60	62	64	66	67	69	71	72	74	75	77	78	80
								1	2	3	4	5	6	7	8	10	11	12	14	15	16	18	19	21	22	24	25	27	28	30	32	34	35	37	39	41	43
108								-35	-7	5	14	20	25	30	34	37	41	43	44	49	51	53	56	58	60	62	63	65	67	68	70	72	74	75	77	78	79
									1	2	3	5	6	7	8	9	10	12	13	14	16	17	18	20	21	23	24	26	27	29	31	32	34	36	38	39	41
109									-13	2	11	19	24	29	33	36	40	43	45	48	51	53	55	57	59	61	63	65	67	68	70	72	73	75	76	78	79
									1	2	3	4	5	6	7	9	10	11	12	13	15	16	17	19	20	22	23	25	26	28	29	31	33	34	36	38	40

DP RH

Elevations between 8,501 and 11,000 feet

Wet Bulb Temperatures 19 to 50 F
(Read Down)

Dry Bulb Temperatures 31 to 50 F
(Read Across)

	19	20	21	22	23	24	25	26	27	28	29	30
31	-38 / 4	-18 / 11	-8 / 18	-1 / 25	5 / 33	10 / 41	14 / 49	17 / 57	21 / 65	23 / 73	26 / 82	28 / 90
32	-28 / 6	-13 / 13	-5 / 20	2 / 27	7 / 35	11 / 42	15 / 50	19 / 59	22 / 66	25 / 74	27 / 82	30 / 91
33	-49 / 2	-21 / 9	-9 / 15	-2 / 22	4 / 29	9 / 37	13 / 44	17 / 52	20 / 59	23 / 67	26 / 75	28 / 83
34	-33 / 4	-15 / 11	-6 / 17	1 / 24	6 / 31	11 / 38	15 / 46	19 / 53	22 / 61	25 / 68	27 / 76	30 / 84
35	-24 / 7	-11 / 13	-3 / 20	4 / 26	9 / 33	13 / 40	17 / 47	20 / 54	23 / 62	26 / 69	29 / 77	31 / 85
36	-39 / 3	-18 / 9	-7 / 15	0 / 22	6 / 28	11 / 35	15 / 42	19 / 48	22 / 56	25 / 63	27 / 71	30 / 78
37	-27 / 5	-13 / 11	-3 / 17		3 / 24	8 / 30	13 / 37	17 / 43	20 / 50	23 / 57	26 / 64	29 / 71
38	-47 / 2	-20 / 7	-8 / 13		0 / 19	6 / 25	10 / 32	15 / 38	18 / 45	22 / 52	25 / 59	27 / 65
39		-31 / 4	-14 / 10		-4 / 15	3 / 21	8 / 27	12 / 34	16 / 40	20 / 46	23 / 53	26 / 59
40		-60 / 1	-22 / 6		-9 / 12	-1 / 17	5 / 23	10 / 28	14 / 35	18 / 41	22 / 48	25 / 54
41			-35 / 3		-15 / 8	-5 / 14	2 / 19	8 / 25	12 / 31	16 / 37	20 / 43	23 / 49
42					-24 / 5	-10 / 10	-1 / 16	5 / 21	10 / 27	14 / 33	18 / 39	22 / 44
43					-39 / 2	-16 / 7	-6 / 12	2 / 18	8 / 23	12 / 29	17 / 34	20 / 40
44						-25 / 4	-11 / 9	-2 / 14	5 / 20	10 / 25	15 / 30	18 / 36
45						-43 / 2	-17 / 5	-6 / 11	2 / 16	8 / 21	13 / 27	16 / 32
46							-27 / 4	-11 / 8	-2 / 13	5 / 18	10 / 23	15 / 28
47							-46 / 1	-18 / 6	-6 / 10	2 / 15	8 / 20	13 / 25
48								-28 / 3	-11 / 8	-2 / 12	5 / 17	10 / 21
49								-49 / 1	-18 / 5	-6 / 10	2 / 14	8 / 18
50									-29 / 3	-11 / 7	-2 / 12	5 / 16

	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
31																				
32	30 / 91																			
33	28 / 83	31 / 92																		
34	27 / 76	30 / 84	32 / 92																	
35	26 / 69	29 / 77	31 / 85	33 / 92																
36	25 / 63	27 / 71	30 / 78	32 / 85	34 / 92															
37	23 / 57	26 / 64	29 / 71	31 / 78	33 / 85	35 / 93														
38	22 / 52	25 / 59	27 / 65	30 / 72	32 / 79	34 / 86	36 / 93													
39	20 / 46	23 / 53	26 / 59	29 / 66	31 / 72	33 / 79	35 / 86	37 / 93												
40	18 / 41	22 / 48	25 / 54	27 / 60	30 / 67	32 / 73	34 / 80	36 / 86	38 / 93											
41	16 / 37	20 / 43	23 / 49	26 / 55	29 / 61	31 / 67	33 / 74	35 / 80	37 / 87	39 / 93										
42	14 / 33	18 / 39	22 / 44	25 / 50	27 / 56	30 / 62	32 / 68	34 / 74	36 / 80	38 / 87	40 / 93									
43	12 / 29	17 / 34	20 / 40	23 / 45	26 / 51	29 / 57	31 / 63	33 / 68	36 / 75	37 / 81	39 / 87	41 / 93								
44	10 / 25	15 / 30	18 / 36	22 / 41	25 / 46	27 / 52	30 / 57	32 / 63	35 / 69	37 / 75	39 / 81	40 / 87	42 / 94							
45	8 / 21	13 / 27	16 / 32	20 / 37	23 / 42	26 / 47	29 / 52	31 / 58	34 / 64	36 / 70	38 / 75	40 / 81	41 / 87	43 / 94						
46	5 / 18	10 / 23	15 / 28	18 / 33	22 / 38	25 / 43	28 / 48	30 / 54	33 / 59	35 / 65	37 / 70	39 / 76	41 / 82	43 / 88	44 / 94					
47	2 / 15	8 / 20	13 / 25	16 / 29	20 / 34	23 / 39	26 / 44	29 / 49	31 / 54	34 / 60	36 / 65	38 / 71	40 / 76	42 / 82	44 / 88	45 / 94				
48	-2 / 12	5 / 17	10 / 21	15 / 26	18 / 31	22 / 36	25 / 40	28 / 45	30 / 50	33 / 55	35 / 60	37 / 66	39 / 71	41 / 77	43 / 82	45 / 88	46 / 94			
49	-6 / 10	2 / 14	8 / 18	13 / 23	17 / 27	20 / 32	23 / 37	26 / 41	29 / 46	32 / 51	34 / 56	36 / 61	38 / 66	40 / 72	42 / 77	44 / 83	46 / 88	47 / 94		
50	-11 / 7	-2 / 12	5 / 16	10 / 20	15 / 24	18 / 28	22 / 33	25 / 38	28 / 42	30 / 47	33 / 52	35 / 57	38 / 62	40 / 67	41 / 72	43 / 77	45 / 83	47 / 88	48 / 94	50

DP RH | DP RH

Elevations between 8,501 and 11,000 feet

Wet Bulb Temperatures 31 to 70 F
(Read Down)

Dry Bulb Temperatures 51 to 70 F
(Read Across)

DP RH | DP RH

	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
51	-38 / 6	-6 / 9	2 / 10	8 / 17	13 / 21	17 / 26	20 / 30	24 / 34	27 / 38	29 / 43	32 / 46	34 / 53	37 / 57	39 / 62	41 / 67	43 / 73	44 / 78	46 / 83	48 / 89	49 / 94	51
52	-29 / 3	-11 / 7	-2 / 11	5 / 15	10 / 19	15 / 23	19 / 27	22 / 31	25 / 35	28 / 40	31 / 44	33 / 49	36 / 53	38 / 58	40 / 63	42 / 68	44 / 73	45 / 78	47 / 83	49 / 89	50 / 94	52
53	-51 / 1	-18 / 5	-6 / 8	2 / 12	8 / 16	13 / 20	17 / 24	21 / 28	24 / 32	27 / 36	30 / 41	32 / 45	35 / 50	37 / 54	39 / 59	41 / 64	43 / 68	45 / 73	47 / 79	48 / 84	50 / 89	51 / 94	53
54		-29 / 2	-11 / 6	-2 / 10	5 / 14	11 / 17	15 / 21	19 / 25	22 / 29	25 / 33	28 / 37	31 / 42	34 / 46	36 / 50	38 / 55	40 / 59	42 / 64	44 / 69	46 / 74	48 / 79	49 / 84	51 / 89	52 / 95	54
55		-50 / 1	-18 / 4	-6 / 8	2 / 11	9 / 15	13 / 19	17 / 22	21 / 26	24 / 30	27 / 34	30 / 38	32 / 43	35 / 47	37 / 51	39 / 56	42 / 60	43 / 65	45 / 69	47 / 74	49 / 79	50 / 84	52 / 89	53 / 95	55
56			-29 / 2	-11 / 6	-2 / 9	5 / 13	11 / 16	15 / 20	19 / 24	23 / 27	26 / 31	29 / 35	31 / 39	34 / 43	37 / 48	39 / 52	41 / 56	43 / 61	45 / 65	46 / 70	48 / 75	50 / 80	51 / 84	53 / 90	54 / 95	56
57			-52 / 1	-19 / 4	-6 / 7	2 / 11	9 / 14	13 / 18	19 / 21	21 / 26	24 / 29	27 / 32	30 / 36	33 / 40	35 / 44	38 / 48	40 / 53	42 / 57	44 / 61	46 / 66	48 / 70	49 / 75	51 / 80	52 / 85	54 / 90	55 / 95	57
58				-29 / 2	-11 / 5	-2 / 9	5 / 12	11 / 15	16 / 19	20 / 22	23 / 26	26 / 30	29 / 33	32 / 37	34 / 41	37 / 45	39 / 49	41 / 53	43 / 58	45 / 62	47 / 66	49 / 71	50 / 75	52 / 80	53 / 85	55 / 90	56 / 95	58
59				-53 / 1	-18 / 4	-6 / 7	2 / 10	9 / 13	14 / 17	18 / 20	22 / 24	25 / 27	28 / 31	31 / 34	33 / 38	36 / 42	38 / 46	40 / 50	42 / 54	44 / 58	46 / 62	48 / 67	50 / 71	51 / 76	53 / 80	55 / 85	56 / 90	58 / 95	59
60					-29 / 2	-11 / 5	-1 / 8	6 / 11	11 / 15	16 / 18	20 / 21	24 / 25	27 / 29	30 / 32	32 / 36	35 / 39	37 / 43	39 / 47	42 / 51	44 / 55	46 / 60	47 / 63	49 / 67	51 / 72	53 / 76	54 / 81	56 / 85	57 / 90	59 / 95	60
61						-18 / 3	-5 / 6	3 / 10	8 / 13	14 / 16	18 / 19	22 / 22	25 / 26	28 / 29	31 / 33	34 / 36	36 / 40	39 / 44	41 / 47	43 / 51	45 / 55	47 / 59	49 / 63	50 / 68	52 / 72	54 / 76	56 / 81	57 / 86	59 / 90	60 / 95	61
62						-28 / 2	-11 / 5	-1 / 8	6 / 11	12 / 14	17 / 17	21 / 20	24 / 22	27 / 27	30 / 30	33 / 34	35 / 37	38 / 41	40 / 46	42 / 48	44 / 52	46 / 56	48 / 60	50 / 64	51 / 68	53 / 72	55 / 77	56 / 81	58 / 86	59 / 90	61 / 95	62
63							-17 / 3	-5 / 6	3 / 9	9 / 12	15 / 15	19 / 18	23 / 21	26 / 24	29 / 28	32 / 31	34 / 34	37 / 38	39 / 43	41 / 45	43 / 49	45 / 53	47 / 56	49 / 60	51 / 64	53 / 68	54 / 73	56 / 77	57 / 81	59 / 86	60 / 90	62 / 95	63
64							-27 / 2	-10 / 5	0 / 8	7 / 10	12 / 13	17 / 16	21 / 19	25 / 22	28 / 25	31 / 29	33 / 32	36 / 35	38 / 39	40 / 42	43 / 46	45 / 49	47 / 53	49 / 57	50 / 61	52 / 65	54 / 69	55 / 73	57 / 77	59 / 82	60 / 86	61 / 91	63 / 95	64
65							-47 / 1	-16 / 3	-4 / 6	4 / 9	10 / 12	15 / 14	20 / 17	23 / 20	27 / 23	30 / 26	32 / 30	35 / 33	37 / 36	40 / 40	42 / 43	44 / 46	46 / 50	48 / 54	50 / 59	52 / 63	53 / 68	55 / 73	56 / 78	59 / 82	61 / 86	62 / 91	64 / 95	65
66								-26 / 2	-9 / 5	1 / 7	7 / 10	13 / 13	18 / 16	22 / 18	25 / 21	28 / 24	31 / 27	34 / 31	36 / 34	39 / 37	41 / 40	43 / 44	45 / 47	47 / 51	49 / 54	51 / 58	53 / 62	54 / 66	56 / 70	58 / 74	59 / 78	60 / 82	62 / 86	63 / 91	65 / 95	66
67								-43 / 1	-15 / 3	-3 / 6	5 / 8	11 / 11	16 / 14	20 / 17	24 / 19	27 / 22	30 / 25	33 / 28	35 / 31	38 / 35	40 / 38	42 / 41	45 / 44	47 / 48	49 / 51	50 / 55	52 / 59	54 / 62	55 / 66	57 / 70	59 / 74	60 / 78	61 / 82	63 / 87	64 / 91	66 / 95	67
68									-24 / 2	-8 / 4	2 / 7	8 / 10	14 / 12	18 / 15	22 / 18	26 / 20	29 / 23	32 / 26	35 / 29	37 / 32	39 / 35	42 / 39	44 / 42	46 / 46	48 / 50	50 / 54	52 / 58	53 / 63	55 / 67	57 / 70	58 / 74	60 / 78	61 / 83	63 / 87	64 / 91	65 / 95	68
69									-39 / 1	-14 / 3	-2 / 5	5 / 8	12 / 11	17 / 13	21 / 16	25 / 19	28 / 21	31 / 24	34 / 27	36 / 30	39 / 33	41 / 36	43 / 39	45 / 42	47 / 46	49 / 49	51 / 53	53 / 56	54 / 60	56 / 63	58 / 67	59 / 71	61 / 75	62 / 79	64 / 83	65 / 87	66 / 91	68 / 96	69
70										-22 / 2	-7 / 4	3 / 7	9 / 9	15 / 12	19 / 14	23 / 17	27 / 20	30 / 22	33 / 25	35 / 28	38 / 31	40 / 34	42 / 37	44 / 40	46 / 43	48 / 46	50 / 50	52 / 53	54 / 56	56 / 60	57 / 64	59 / 67	60 / 71	62 / 75	63 / 79	65 / 83	66 / 87	67 / 91	69 / 95	70

Elevations between 8,501 and 11,000 feet

Wet Bulb Temperatures 41 to 82 F
(Read Down)

Dry Bulb Temperatures 71 to 90 F
(Read Across)

DP
RH

	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
71	-32 3	-1 6	6 9	12 10	17 13	22 15	25 18	29 21	32 23	34 26	37 23	39 32	42 35	44 38	46 41	48 44	50 47	52 50	53 54	55 57	57 60	58 64	60 68	61 71	63 75	64 79	66 83	67 87	68 91	70 96
72	-19 2	-5 4	4 7	10 9	15 11	20 14	24 16	27 19	30 22	33 24	36 27	38 30	41 32	43 35	45 38	47 41	49 44	51 48	53 51	55 54	56 57	58 61	60 64	61 68	63 72	64 75	65 79	67 83	68 87	69 92
73	-21 1	-10 2	0 -6	7 8	13 10	18 13	22 15	26 17	29 20	32 22	35 25	38 28	40 30	42 33	44 36	46 39	48 42	50 45	52 48	54 51	56 55	57 58	59 61	61 65	62 68	64 72	65 76	66 80	68 83	69 87
74		-17 2	-4 4	5 7	11 9	16 11	21 14	25 16	28 19	31 21	34 23	37 26	39 29	41 31	44 34	46 37	48 40	50 43	52 46	54 49	55 52	57 55	59 58	60 62	62 65	63 69	65 72	66 76	67 80	69 84	70 88
75		-27 1	-9 3	2 5	9 6	14 10	19 12	23 14	27 17	30 19	33 22	36 24	38 27	41 29	43 32	45 35	47 37	49 40	51 43	53 46	55 49	57 52	58 55	60 59	61 62	63 66	64 69	66 73	67 76	69 80	70 84
76			-15 2	-2 4	6 7	12 9	17 11	22 13	25 15	29 18	32 20	35 23	37 25	40 27	42 30	44 33	47 35	49 38	50 41	52 44	54 47	56 50	58 53	59 56	61 59	63 63	64 66	65 69	67 73	68 76	70 80
77			-23 2	-7 3	3 5	10 8	15 10	20 12	24 14	28 16	31 19	34 21	37 23	39 26	41 29	44 31	46 34	48 37	50 39	52 42	54 44	55 47	57 50	58 53	61 56	62 60	64 63	65 66	67 70	68 73	69 77
78			-37 1	-12 2	0 5	7 7	13 9	18 11	23 13	26 15	30 17	33 19	36 22	38 24	41 27	43 29	45 32	47 34	49 37	51 39	53 42	55 45	57 48	58 51	60 54	62 57	63 60	65 63	66 67	68 70	69 73
79				-19 2	-5 4	5 6	11 7	16 9	21 10	25 12	28 14	32 16	35 18	37 20	40 23	42 25	45 27	47 30	49 32	51 35	53 37	54 40	56 42	58 45	60 48	61 51	63 54	64 57	66 60	67 63	69 67
80				-31 1	-10 3	1 5	9 7	14 8	19 10	24 12	27 14	31 17	34 19	37 21	39 24	42 26	44 29	46 32	48 34	50 37	52 39	54 42	56 45	57 48	59 51	61 54	62 57	64 60	66 63	67 67
81					-16 2	-2 4	6 6	13 7	18 9	22 10	26 12	30 15	33 17	36 19	38 22	41 24	43 26	45 29	47 31	49 34	51 36	53 39	55 42	57 45	59 48	60 51	62 54	64 57	65 61	67 64
82					-25 1	-7 2	3 5	10 6	16 8	20 10	25 12	28 14	32 16	35 18	37 20	40 23	42 25	45 27	47 29	49 32	51 34	53 37	55 39	56 42	58 45	60 48	62 51	63 54	65 57	66 61
83						-10 2	0 4	8 6	14 7	19 9	23 10	27 13	31 15	34 17	37 19	39 21	42 23	44 26	46 28	48 30	50 32	52 35	54 37	56 40	58 42	59 45	61 48	63 51	64 54	66 57
84						-20 1	-6 2	5 5	12 7	17 8	22 10	26 12	29 14	32 16	36 18	38 20	41 22	43 24	46 26	48 28	50 31	52 33	54 35	55 38	57 40	59 43	61 46	62 49	64 52	66 55
85						-32 1	-10 2	2 4	9 6	15 7	20 9	24 11	28 13	32 15	35 17	38 19	40 21	43 23	45 25	47 27	49 30	51 32	53 34	55 36	57 39	59 41	60 44	62 46	64 49	65 52
86							-16 2	-2 3	7 5	13 7	18 8	23 10	27 12	30 14	34 16	37 17	39 19	42 21	44 23	46 25	48 28	51 30	53 32	54 34	56 37	58 39	60 41	61 44	63 46	65 49
87							-25 1	-7 2	4 4	11 6	17 7	21 9	25 11	28 13	33 14	36 16	39 18	41 20	44 22	46 24	48 26	50 28	52 30	54 33	56 35	58 37	59 39	61 42	63 44	64 47
88								-12 2	0 3	8 5	15 7	20 8	24 10	28 12	32 13	35 15	38 17	40 19	43 21	45 23	47 25	49 27	51 29	53 31	55 33	57 35	55 38	61 40	62 42	64 45
89								-20 1	-4 2	6 4	13 6	18 7	23 9	27 11	30 12	34 14	37 16	40 18	42 20	44 21	47 23	49 25	51 27	53 29	55 31	57 34	58 36	60 39	62 42	63 45
90								-31 1	-9 2	3 4	10 5	16 7	21 8	25 10	29 11	33 13	36 15	39 17	41 18	44 20	46 22	48 24	50 26	52 28	54 30	56 33	58 35	60 38	61 41	63 43

Primary carrier of the fire is GRASS.

A. Grass is fine structured, generally below knee level, and cured or primarily dead. Grass is essentially continuous.
See FM 1

B. Grass is coarse structured, above knee level (averaging about 3 ft.) and is difficult to walk through.
See FM 3

C. Grass is usually under an open timber or brush overstory. Litter from the overstory id involved, but grass is the carries the fire. Expected spread rate is less than FM 1 and intensity is less than FM 3.
See FM 2

Primary carrier of the fire is BRUSH or litter beneath brush.

A. Vegetative type is southern rough or low pocosin. Brush is generally 2 to 4 ft. high.
See FM 7

B. Live fuels are absent or sparse. Brush averages 2 to 4 ft. in height. Brush requires moderate winds to carry fire.
See FM 6

C. Live fuels have a significant effect on fire behavior.
   1. Brush is about 2 ft. high, with light loading of brush litter underneath. Litter may carry the fire, especially at low wind speeds.
      See FM 5
   2. Brush is head height (6 ft), with heavy loadings of dead (woody) fuel. Very intense fire with high spread rates expected.
      See FM 4
   3. Vegetation type is high pocosin.
      See FM 4

Primary carrier of the fire is litter beneath a TIMBER stand.

A. Surface fuels are mostly foliage litter. Large fuels are scattered and lie on the foliage litter; that is, large fuels are not supported above the litter by their branches. Green fuels are scattered enough to insignificant to fire behavior.
   1. Dead foliage is tightly compacted, short needle (2 in. or less) conifer or hardwood litter.
      See FM 8
   2. Dead foliage litter is loosely compacted long needle pine or hardwoods.
      See FM 9

B. There is a significant amount of larger fuels with attached branches and twigs, or has rotted enough that it is splintered and broken. The larger fuels are fairly well distributed over the area. Some green fuel may be present. Overall depth of the fuel is primarily below knees, but some fuel may be higher.
See FM 10

Primary carrier of the fire is LOGGING SLASH.

A. Slash is aged and overgrown.

1. Slash is from hardwood trees. Leaves have fallen and cured. Considerable vegetation (tall weeds) has grown in amid the slash and has cured and dried out.
See FM 6
2. Slash is from conifers. Needles have fallen and considerable vegetation (tall weeds and some shrubs) has overgrown the slash.
See FM 10

B. Slash is fresh (0 to 3 years) and not overly compacted.

1. Slash is not continuous. Needle litter or small amounts of grass or shrubs must be present to carry the fire, but primary carrier is still slash. Live fuels are absent or do not play a significant role in fire behavior.
See FM 11
2. Slash generally covers the ground (heavier loadings than FM 11), though there may be some bare spots or areas of light coverage. Average slash depth is about 2'. Slash is not excessively compacted. Approximately ½ of the needles may still be on the branches but are not red. Live fuels are absent, or are not expected to affect fire behavior.
See FM 12
3. Slash is continuous or nearly so (heavier loadings than FM 12). Slash is not extremely compacted and has an average depth of 3'. Approximately ½ of the needles are still present and are red, or all the needles are still on the branches and but are green. Live fuels are not expected to influence fire behavior.
See FM 13
4. Same as 3, EXCEPT all the needles are attached and are red.
See FM 4

Grass Group

Fuel Model 1 - Fire spread is governed by fine herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through cured grass and associated material. Very little shrub or timber is present, generally less than 1/3 of the area.

Grasslands and savanna are represented along with stubble, grass tundra, and grass-shrub combinations that meet the above area constraint. Annual and perennial grasses are included in this fuel model.

Fuel Model 2 – Fire spread is primarily through the fine herbaceous fuels, either curing or dead. These are surface fires where the herbaceous material, besides litter and dead-down stem-wood from the open shrub or timber overstory, contribute to the fire intensity. Open shrub lands and pine stands or scrub oak stands that cover 1/3 to 2/3 of the area may generally fit this model but may include clumps of fuels that generate higher intensities and may produce firebrands. Some piñon-juniper may be in this model.

Fuel Model 3 – Fires in this fuel are the most intense of the grass group and display high rates of spread under the influence of wind. The fire may be driven into the upper heights of the grass stand by the wind and cross over standing water. Stands are tall, averaging about 3', but considerable variation may occur. Approximately 1/3 of the stand is considered dead or cured and maintains the fire.

Shrub Group

Fuel Model 4 – Fire intensity and fast spreading fires involve the foliage and live and dead fine woody material in the crowns of a nearly continuous secondary overstory. Examples are stands of mature shrub, 6' or more tall, such as California mixed chaparral, the high pocosins along the East Coast, the pine barrens of New Jersey or the closed jack pine stands of the north central states. Besides flammable foliage, there is dead woody material in the stand that significantly contributes to the fire intensity. Height of the stands qualifying for this model varies with local conditions. There may be also a deep litter layer that confounds suppression efforts.

Fuel Model 5 – Fire is generally carried in the surface fuels made up of litter cast by the shrubs and grasses or forbs in the understory. Fires are generally not very intense as surface fuel loads are light, the shrubs are young with little dead material, and the foliage contains little volatile material. Shrubs are generally not tall, but nearly cover the entire area. Young, green stands with little or no deadwood such as laurel, vine maple, alder, or even chaparral, manzanita, or chamise are examples.

Fuel Model 6 – Fires carry through the shrub layer where the foliage is more flammable than fuel model 5, but require moderate winds (>8 mph) at midflame height. Fire will drop to the ground at low wind speeds or openings in the stand. Shrubs are older, but not as tall as shrub types of model 4, nor do they contain as much fuel as model 4. A broad range of shrub conditions is covered by this model. Typical examples include intermediate stands of chamise, chaparral, oak brush, low pocosin, Alaskan black spruce

taiga, and shrub tundra. Piñon-juniper shrub-lands may fit, but may over predict rate-of-spread except at high wins, e.g. 20 mph at the 20' level.

Fuel Model 7 – Fire burns through the surface and shrub strata equally. Fire can occur at higher dead fuel moisture contents due to the flammable nature of live foliage. Shrubs are generally 2 to 6' high. Examples are palmetto-gallberry understory-pine overstory sites, low pocosins, and Alaskan black spruce-shrub combinations.

Timber Group

Fuel Model 8 – Slow burning ground fires with low flame heights are generally the case, although an occasional "jackpot" or heavy fuel concentration may cause a flare up. Only under severe weather conditions do these fuels pose fire problems. Closed-canopy stands of short needle conifers of hardwoods that have leafed out support fire in the compact litter layer. This layer is mainly needles, leaves, and some twigs since little undergrowth is present in the stand. Representative conifer types are white pine, lodgepole pine, spruce, true firs and larches.

Fuel Model 9 – Fires run through the surface litter faster than model 8 and have higher flame height. Both long needle conifer and hardwood stands, especially the oak-hickory types are typical. Fall fires in hardwoods are representative, but high winds will actually cause higher rates of spread than predicted because of spotting caused by rolling and blowing leaves. Closed stands of long needle pine like ponderosa, Jeffery, and red opines or southern pine plantations are grouped in this model. Concentrations of dead-down woody material will contribute to possible torching out of trees, spotting, and crowning activity.

Fuel Model 10 – The fires burn in the surface and ground fuels with greater fire intensity than other timber litter models. Dead down fuels include greater quantities of 3" or larger limb wood resulting from over-maturity or natural events that create a large load of dead material on the forest floor. Crowning out, spotting, and torching of individual trees are more frequent in this fuel situation leading to potential control difficulties. Any forest type may be considered when heavy down materials are present; examples are insect or diseased stands, wind thrown stands, over-mature situations with deadfall, and cured light thinning or partial cut slash.

Logging Slash Group

Fuel Model 11 – Fires are fairly active in the slash and herbaceous material intermixed with the slash. The spacing of the rather light fuel load, shading from the overstory, or the aging of the fine fuels can contribute to limiting the fire potential. Light partial cuts or thinning operations in mixed conifer stands, hardwood stands and southern pine harvests are considered. Clear-cut operations generally produce more slash than represented here, The <3" material load is less than 12 tons per acre. The > 3" material is represented by not more than 10 pieces; 4" in diameter along a 50' transect.

Fuel Model 12 – Rapidly spreading fires with high intensities capable of generating firebrands can occur. When fire starts, it is generally sustained until a fuel break or change in fuels is encountered. The visual impression is dominated by slash and much of it is <3" in diameter. These fuels total less than 35 tons per acre and seem well distributed. Heavily

thinned conifer stands, clear-cuts and medium or heavy partial cuts are represented. The >3" material is represented by encountering 11 pieces, 6" in diameter along a 50' transect.

Fuel Model 13 – Fire is generally carries by a continuous layer of slash. Large quantities of >3" material are present. Fires spread quickly through the fine fuels and intensity builds up as the large fuels start burning. Active flaming is sustained for long periods and a wide variety of firebrands can be generated. These contribute to spotting problems, as the weather conditions become more severe. Clear-cuts and heavy partial cuts in mature and over-mature stands are depicted where slash the slash load is dominated by >3" material. The total load may exceed 200 tons per acre, but the 3" fuel is generally only 10% of the total load. Situations where slash still has "red" needles attached, but the total load is lighter like a model 12, can be represented because of the earlier high intensity and faster rate of spread.

Interagency Fire Use Module Field Guide
Appendix E – Fine Dead Fuel Moisture Tables

ReferenceFuel Moisture
Day Time
0800 - 1959

Dry Bulb Temp. (F)	Relative Humidity (%) 0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99	100
10 - 29	1	2	2	3	4	5	5	6	7	8	8	8	8	9	[illegible]	[illegible]	12	12	13	13	14
30 - 49	1	2	2	3	4	5	5	6	7	7	7	8	8	9	[illegible]	[illegible]	[illegible]	12	13	13	13
50 - 69	1	2	2	3	4	5	5	6	6	7	7	8	8	9	9	[illegible]	[illegible]	12	12	12	13
70 - 89	1	1	2	2	3	4	5	5	6	7	7	8	8	8	9	[illegible]	[illegible]	[illegible]	12	12	13
90 - 109	1	1	2	2	3	4	5	5	6	7	7	8	8	8	9	[illegible]	[illegible]	[illegible]	12	12	13
109 +	1	1	2	2	3	4	4	5	6	7	7	8	8	8	9	[illegible]	[illegible]	[illegible]	12	12	12

Dead Fuel Moisture Content Corrections
May June July

As	Slope	0800 to B	0800 to L	0800 to A	1000 to B	1000 to L	1000 to A	1200 to B	1200 to L	1200 to A	1400 to B	1400 to L	1400 to A	1600 to B	1600 to L	1600 to A	1800 to B	1800 to L	1800 to A
Exposed - Less than 50% shading of surface fuels																			
N	0 - 30%	2	3	4	1	1	1	1	1	1	1	1	1	1	1	1	2	3	4
	31% +	3	4	4	1	2	2	1	1	2	1	1	2	1	2	2	3	4	4
E	0 - 30%	2	2	3	1	1	1	1	2	1	1	1	1	1	1	2	3	4	4
	31% +	1	2	2	1	2	1	1	1	1	1	1	2	2	3	4	4	5	[illegible]
S	0 - 30%	2	3	3	1	1	1	1	1	1	1	1	1	1	1	1	2	3	3
	31% +	2	3	3	1	1	2	1	1	1	1	1	1	1	1	2	2	3	3
W	0 - 30%	2	3	4	1	1	2	1	1	1	1	1	1	1	1	1	2	3	3
	31% +	4	5	[illegible]	2	3	4	1	1	2	1	2	1	1	1	1	1	2	3
Shaded - Greater than or equal to 50% shading of surface fuels																			
N	All	4	5	5	3	4	5	3	3	4	3	3	4	3	4	5	4	5	5
E	All	4	4	5	3	4	5	3	3	4	3	4	4	3	4	5	4	[illegible]	[illegible]
S	All	4	4	5	2	4	5	3	3	4	3	3	4	3	4	5	4	5	[illegible]
W	All	4	[illegible]	[illegible]	3	4	5	3	3	4	3	3	4	3	4	5	4	4	[illegible]

Dead Fuel Moisture Content Corrections
Feb. March April Aug. Sept. Oct.

As	Slope	0800 to B	0800 to L	0800 to A	1000 to B	1000 to L	1000 to A	1200 to B	1200 to L	1200 to A	1400 to B	1400 to L	1400 to A	1600 to B	1600 to L	1600 to A	1800 to B	1800 to L	1800 to A
Exposed - Less than 50% shading of surface fuels																			
N	0 - 30%	3	4	5	1	2	3	1	1	2	1	1	2	1	2	3	3	4	5
	31% +	3	4	5	2	3	4	2	3	4	2	3	4	3	3	4	3	4	5
E	0 - 30%	3	4	5	1	2	3	1	1	1	1	1	2	1	2	3	3	4	5
	31% +	3	3	4	1	1	1	1	1	1	1	2	3	3	4	5	4	5	[illegible]
S	0 - 30%	3	4	5	1	2	2	1	1	1	1	1	1	1	2	3	3	4	5
	31% +	3	4	5	1	2	2	1	1	1	1	1	1	1	2	2	3	4	[illegible]
W	0 - 30%	3	4	5	1	2	3	1	1	1	1	1	1	1	2	3	3	4	5
	31% +	4	5	[illegible]	3	4	5	1	2	3	1	1	1	1	1	1	3	3	4
Shaded - Greater than or equal to 50% shading of surface fuels																			
N	All	4	5	[illegible]	4	5	5	3	4	5	3	4	5	4	5	5	4	5	5
E	All	4	5	5	3	4	5	3	4	5	3	4	5	4	[illegible]	[illegible]	4	[illegible]	[illegible]
S	All	4	5	[illegible]	3	4	5	3	4	5	3	4	5	3	4	5	4	5	[illegible]
W	All	4	5	5	4	5	[illegible]	3	4	5	3	4	5	3	4	5	4	5	[illegible]

Interagency Fire Use Module Field Guide
Appendix E – Fine Dead Fuel Moisture Tables

Dead Fuel Moisture Content Corrections

Nov. Dec. Jan.

Asp	Slope	0800 to			1000 to			1200 to			1400 to			1600 to			1800 to		
		B	L	A	B	L	A	B	L	A	B	L	A	B	L	A	B	L	A
Exposed - Less than 50% shading of surface fuels																			
N	0 - 30%	4	5	5	3	4	5	2	3	4	2	3	4	3	4	5	4	5	5
	31%+	4	5	5	4	5	5	4	5	5	4	5	5	4	5	5	4	5	5
E	0 - 30%	4	5	5	3	4	4	2	3	3	2	3	3	3	4	5	4	5	5
	31%+	4	5	5	2	3	4	2	2	3	3	4	4	4	5	5	4	5	5
S	0 - 30%	4	5	5	3	4	5	2	3	3	2	2	3	3	4	4	4	5	5
	31%+	4	5	5	3	3	3	1	1	2	1	1	2	2	3	3	4	5	5
W	0 - 30%	4	5	5	3	4	5	2	3	3	2	3	3	3	4	4	4	5	5
	31%+	4	5	5	4	5	5	3	4	4	3	2	3	2	3	4	4	5	5
Shaded - Greater this or equal to 50% shading of surface fuels																			
N	All	4	5	5	4	5	5	4	5	5	4	5	5	4	5	5	4	5	5
E	All	4	5	5	4	5	5	4	5	5	4	5	5	4	5	5	4	5	5
S	All	4	5	5	4	5	5	4	5	5	4	5	5	4	5	5	4	5	5
W	All	4	5	5	4	5	5	4	5	5	4	5	5	4	5	5	4	5	5

ReferenceFuel Moisture

Night Time

2000 - 0759

Dry Bulb Temp. (F)	Relative Humidity (%) 0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 - 74	75 - 79	80 - 84	85 - 89	90 - 94	95 - 99	100
10 - 29	1	2	4	5	6	6	7	8	9	10	11	12	12	14	15	17	19	22	25	25+	25+
30 - 49	1	2	3	4	5	6	7	8	9	9	11	11	12	13	14	16	18	21	24	25+	25+
50 - 69	1	2	3	4	5	6	6	8	8	9	10	11	11	12	14	16	17	20	23	25+	25+
70 - 89	1	2	3	4	4	5	6	7	8	9	10	10	11	12	13	15	17	20	23	25+	25+
90 - 109	1	2	3	3	4	5	6	7	8	8	9	10	11	11	13	14	16	19	22	25	25+
109 +	1	2	2	3	4	5	6	6	8	8	9	10	10	11	12	14	16	19	21	24	25+

Dead Fuel Moisture Corrections

Night Time

2000 - 0759

Aspect	2000 to			2200 to			2400 to			0200 to			0400 to			0600 to		
	B	L	A	B	L	A	B	L	A	B	L	A	B	L	A	B	L	A
N & E	9	1	1	13	1	2	16	2	2	17	1	1	18	1	1	16	2	1
S & W	9	0	1	14	0	1	16	0	2	17	0	1	18	0	0	0	0	1

Shading (%)	Dry Bulb Temperature (F)	Fine Dead Fuel Moisture (%)															
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Unshaded <50%	110+	100		80	70	60	60	50	40	40	30	30	20	20	20	20	10
	100 - 109	100	90	80	70	60	60	50	40	40	30	30	20	20	20	10	10
	90 - 99	100	90	80	70	60	50	40	40	30	30	30	20	20	20	10	10
	80 - 89	100	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10
	70 - 79	100	80	70	60	60	50	40	40	30	30	20	20	20	10	10	10
	60 - 69	90	80	70	60	50	50	40	30	30	20	20	20	20	10	10	10
	50 - 50	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
	40 - 49	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
	30 - 39	80	70	60	50	50	40	30	30	20	20	20	10	10	10	10	10
Shaded >50%	110+	100	90	80	70	60	50	50	40	40	30	30	20	20	20	10	10
	100 - 109	100	90	80	70	60	50	50	40	30	30	30	20	20	20	10	10
	90 - 99	100	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10
	80 - 89	100	80	70	60	60	50	40	40	30	30	20	20	20	10	10	10
	70 - 70	90	80	70	60	50	50	40	30	30	30	20	20	20	10	10	10
	60 - 69	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
	50 - 59	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
	40 - 49	90	80	60	50	50	40	30	30	30	20	20	20	10	10	10	10
	30 - 39	80	80	60	50	50	40	30	30	20	20	20	10	10	10	10	10

Appendix E – Live Fuel Moisture Estimates

Guidelines for estimating live fuel (foliage) moisture content. Live fuel moisture is required for fuel models 2,4,5,7, and 10. If data are unavailable for estimating live fuel moisture the following rough estimates can be used.

Stage of vegetative development	Moisture content
Fresh foliage, annuals developing, early in growing cycle	300%
Maturing foliage, still developing with full turgor	200%
Mature foliage, new growth complete and comparable to older perennial foliage	100%
Entering dormancy, coloration starting, some leaves may have dropped from stem	50%
Completely cured	Less than 30%, treat as a dead fuel

Slope = (Rise/Run)*100%

Field Measuring

Rough estimates of slope can be made in the field. A clinometer is more accurate than most rough estimates. Estimates are still usually accurate enough for fire behavior calculations.

Map Measurements

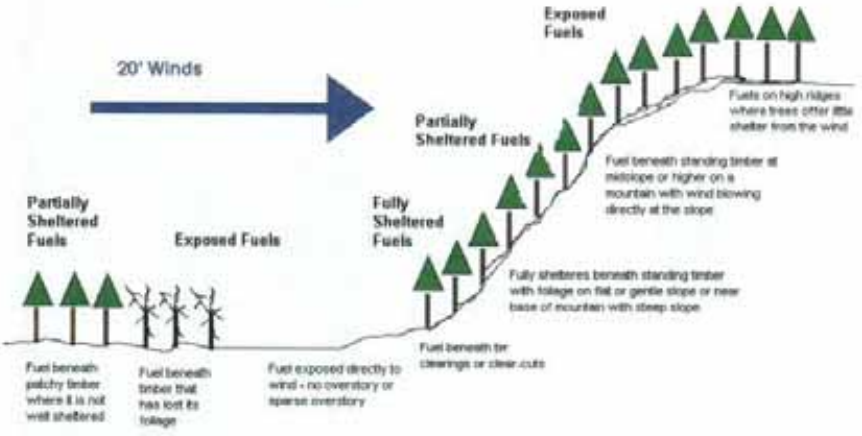
Slope can be measured on a topographic map. The following steps can be used.

- **Determine Contour Interval** - Can be found in the bottom center of most topographic maps, or determined by counting contours lines between 2 known contours and dividing by the number of contour lines.
- **Determine Map Scale** - Usually found at the bottom center of most topographic maps.
- **Determine Map Conversion Factor** - Can be confusing. It is a factor to change inches measured on a map to feet on the ground. The following factors can be used for the map scales listed:

7.5 min.	1:24,000	2000 ft/in
15 min.	1:62,500	5280 ft/in

- **Determine Rise** - Count spaces between contour intervals for a fixed distance and multiply by the contour interval.
- **Determine Run** - Measure the same distance you counted contour intervals and multiply it by the conversion factor.
- **Determine Slope** – Plug the numbers into the above formula to get the slope %.

Wind Adjustment for Exposure of Fuels to Wind



Fuel Exposure	Fuel Model	Adjustment Factor
Exposed Fuels Fuel exposed directly to the wind. No or sparse overstory. Fuel beneath timber that has lost its foliage overstory; fuel beneath timber near clearings or clear-cuts; fuel on high ridges where trees offer little shelter from the wind.	4 13 **All Others***	0.6 0.5 0.4
Partially Sheltered Fuels Fuel beneath patchy timber where it is not well sheltered; fuel beneath standing timber at mid-slope or higher on a mountain with wind blowing directly at the slope.	All Fuel Models	0.3
Fully Sheltered Fuels Fuel sheltered beneath standing timber on flat or gentle slope or near base of mountain with steep slopes.	All Fuel Models	0.2 Open Stands 0.1 Dense Stands

***Fuel Models 2 and 7 are usually partially sheltered**
Fuel models 8, 9 and 10 are usually fully sheltered

PROBABILITY OF IGNITION TABLE

Shading (Percent)	Dry-Bulb Temp. (°F)	FINE DEAD FUEL MOISTURE (PERCENT)															
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	110+	100	100	80	70	60	60	50	40	40	30	30	20	20	20	20	10
	100-109	100	90	80	70	60	60	50	40	40	30	30	20	20	20	10	10
	90-99	100	90	80	70	60	50	40	40	30	30	30	20	20	20	10	10
	80-89	100	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10
Unshaded	70-79	100	80	70	60	60	50	40	40	30	30	20	20	20	10	10	10
<50%	60-69	90	80	70	60	50	50	40	30	30	20	20	20	20	10	10	10
	50-59	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
	40-49	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
	30-39	80	70	60	50	50	40	30	30	20	20	20	10	10	10	10	10
	110+	100	90	80	70	60	50	50	40	40	30	30	20	20	20	10	10
	100-109	100	90	80	70	60	50	50	40	30	30	30	20	20	20	10	10
	90-99	100	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10
	80-89	100	80	70	60	60	50	40	40	30	30	20	20	20	10	10	10
Shaded	70-79	90	80	70	60	50	50	40	30	30	30	20	20	20	10	10	10
>50%	60-69	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
	50-59	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
	40-49	90	80	60	50	50	40	30	30	30	20	20	20	10	10	10	10
	30-39	80	80	60	50	50	40	30	30	20	20	20	10	10	10	10	10

CONDUCTING AFTER ACTION REVIEWS

Dos		Don't's
-Schedule AARs shortly after the completion of an activity.		-Conduct AARs without planning.
-Make reviews routine.		-Conduct reviews infrequently or irregularly.
-Collect objective data whenever possible.		-Allow debates to bog down when establishing the facts.
-Use trained facilitators.		-Allow dominating leaders to run AARs.
-Establish clear ground rules:	-Encourage candor and openness. -Focus on things that can be fixed. -Keep discussions confidential.	-Base performance evals or promotions on mistakes admitted in AARs.
-Proceed systematically.	-What did we set out to do? -What actually happened? -Why did it happen? -What are we going to do next time?	-Permit unstructured, meandering, disorganized discussions.
-Involve all participants in discussions.		-Allow senior managers or facilitators to dominate discussions.
-Probe for underlying cause-and-effect relationships.		-Criticize or fault individual behavior or performance.
-Identify activities to be sustained as well as avoided.		-Conclude without a list of learnings to be applied in the future.

	FIRE BEHAVIOR OBSERVATIONS SUMMARY SHEET	**INTERAGENCY FIRE USE MODULES**

Fire Name:_____ Fire #_____

Management Unit:_____ Date:_____ Time:_____

Current Fire Size:_____ Observation Location (map grid/elev.etc.):_____

Attach current map indicating active fire perimeter, spread direction and other significant information.

Fuel Model/Vegetation Type (of active area):_____

Fire Activity: Creeping, Running, Torching, or Crowning._____

- Rate of Spread_____ch/h Type of spread Head Flanking Backing Average (select any that apply)
- Perimeter growth_____chains, direction_____Growth Rate (chains/time)_____
- Percent of perimeter actively burning?_____.Location(s)_____
- Max temp/time_____Min temp/time_____ Min RH/time_____ Max RH/time
- Wind: Max sustained dir/time_____
- Smoke: (describe column: color, shape, etc)_____
- Distance to MMA, Trigger Points, other values at risk (note on attached map also)_____

Other notes (i.e. influencing factors – topography, shading, etc., potential fuel model changes, resistance to control efforts, structures (if applicable), more on observations above.)

Prepared by:_____ Date_____
Name, Module, and Qualification

Reviewed by:_____ Date_____
Name, Module, and Qualification

Attached Products: (check)

- ☐ **FIRE BEHAVIOR OBSERVATIONS**
- ☐ **SMOKE OBSERVATIONS**
- ☐ **SPOT WEATHER FORECAST REQUEST**
- ☐ **FIRE PERIMETER/ AREA MAP**
- ☐ **FIRE WEATHER OBSERVATIONS**
- ☐ **FUEL MOISTURE SAMPLING SHEET**
- ☐ **ICS 214 UNIT LOG**
- ☐ **PHOTO LOG**

WS FORM D-1
(12-86)
Pres. By WSOM D-41

U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL WEATHER SERVICE

FIRE WEATHER SPECIAL FORECAST REQUEST

I – REQUESTING AGENCY WILL FURNISH:

1. NAME OF FIRE OR OTHER PROJECT	2. CONTROL AGENCY	3. REQUEST MADE	
		TIME	DATE

4. LOCATION (*By ¼ Sec-Sec-Twp-Range*)	5. DRAINAGE NAME	6. EXPOSURE (*NE, E, SE, etc.*)

7. SIZE OF PROJECT (*Acres*)	8. ELEVATION*		9. FUEL TYPE	10. PROJECT ON:
	TOP	BOTTOM		GROUND CROWNING

11. WEATHER CONDITIONS AT PROJECT OR FROM NEARBY STATIONS

PLACE	ELE-VATION	OB TIME	WIND DIR.VEL.		TEMP.				REMARKS (*Indicate rain, thunderstorms, etc. Also wind conditions and 10ths of cloud cover*)
			20 FT	EYE LEVEL	DRY	WET	RH	DP	

12. SEND FORECAST TO:	PLACE	VIA	ATTN:

II-FIRE WEATHER FORECASTER WILL FURNISH:

13. FORECAST AND OUTLOOK:
(*SPECIFY Wind – 20 foot or Eye Level*)

TIME AND DATE:_____

Synopsis:

Burn Period	Sky Cover	Temperature	Humidity	Wind: Eye-Level	Wind: 20-Foot	Indices
❑ Today (sunrise to dusk) ❑ This Afternoon (noon until dusk) ❑ This evening (1600 until dusk) ❑ Tonight (sunset until sunrise)	❑ Mostly Sunny/Clear ❑ Fair ❑ Partly Cloudy ❑ Mostly Cloudy ❑ Cloudy ❑ Variable Clouds	_____ °F ❑ High ❑ Low ❑ Range	_____ % ❑ Maximum ❑ Minimum ❑ Range	❑ Upslope ❑ Downslope Direction:_____ Velocity_____ Gusts_____	❑ Upslope ❑ Downslope Direction:_____ Velocity_____ Gusts_____	Haines: LAL: BI: CI:
❑ Today (sunrise to dusk) ❑ This Afternoon (noon until dusk) ❑ This evening (1600 until dusk) ❑ Tonight (sunset until sunrise)	❑ Mostly Sunny/Clear ❑ Fair ❑ Partly Cloudy ❑ Mostly Cloudy ❑ Cloudy ❑ Variable Clouds	_____ °F ❑ High ❑ Low ❑ Range	_____ % ❑ Maximum ❑ Minimum Range	❑ Upslope ❑ Downslope Direction:_____ Velocity_____ Gusts_____	❑ Upslope ❑ Downslope Direction:_____ Velocity_____ Gusts_____	Haines: LAL: BI: CI:
Outlook For (Date): _____	❑ Mostly Sunny/Clear ❑ Fair ❑ Partly Cloudy ❑ Mostly Cloudy ❑ Cloudy ❑ Variable Clouds	_____ °F ❑ High ❑ Low ❑ Range	_____ % ❑ Maximum ❑ Minimum Range	❑ Upslope ❑ Downslope Direction:_____ Velocity_____ Gusts_____	❑ Upslope ❑ Downslope Direction:_____ Velocity_____ Gusts_____	Haines: LAL: BI: CI:

NAME OF FIRE WEATHER FORECASTER	FIRE WEATHER OFFICE

III – REQUESTING AGENCY WILL COMPLETE UPON RECEIPT OF FORECAST

IV – FORECAST RECEIVED:	TIME	DATE	NAME

FIRE NAME:	INTERAGENCY FIRE USE MODULE FUEL MOISTURE SAMPLING SHEET	DATE:

OBSERVER(S):

COLLECTED BY:_____
DATE COLLECTED:_____
TIME COLLECTED:_____

WEIGHED BY:_____
DATE INOVEN:_____
TIME IN OVEN:_____

DATE OUT OF OVEN:_____
TIME OUT OF OVEN:_____
WEIGHED BY:_____

SPECIES / MATERIAL	ELEV.	ASPECT	LOCATION	CAN #	TARE	WET WT (g)	DRY WT (g)	% MOIST. *	COMMENTS

WEATHER OBS:
DEW POINT:_____
CLOUD TYPE:_____
WIND DIRECTION/MPH: _____/_____

DRY BULB: _____
HUMIDITY: _____
10 HOUR FMTL STICK: _____
GUST DIRECTION/MPH: _____/_____

WET BULB: _____
% CLOUD COVER:_____
% CANOPY COVER:_____
TIME: _____

*FUEL MOISTURE CALCULATION FORMULA:

$$\left(\frac{(WET - DRY)}{DRY} \right) X\ 100$$

Revised: 07/17/03

FIRE NAME:	FIRE BEHAVIOR OBSERVATIONS	DATE:

OBSERVER(S):

TIME	LOCATION	ELEVATION	ASPECT	% SLOPE	FIRE TYPE (B/F/H)	FLAME LENGTH	FLAME ZONE DEPTH	ROS	PRIMARY CARRIER	FUEL MODEL	COMMENTS (Scorch height, % consumption, spotting distance, fuel continuity and arrangement, etc.)

FIRE NAME:	INTERAGENCY FIRE USE MODULE PHOTOGRAPH LOG SHEET	PHOTOGRAPHER(S):

PHOTO #	DATE	TIME	LOCATION	COMMENTS

Revised: 07/17/03

FIRE NAME:	INTERAGENCY FIRE USE MODULE FIRE WEATHER OBSERVATIONS	DATE:

OBSERVER(S):

TIME	LOCATION	ELEVATION	WIND DIRECTION	WIND SPEED/ (GUSTS)	DRY BULB	WET BULB	RELATIVE HUMIDITY	DEW POINT	ASPECT	% SLOPE	% CLOUD COVER	% CANOPY COVER	REF. FUEL MOISTURE	EXPOSED / SHADED	FINE DEAD FUEL MOISTURE	PROB. OF IGNITION	COMMENTS (PRECIP, LOCAL INFLUENCES, ETC.)

FIRE NAME:	INTERAGENCY FIRE USE MODULE SMOKE OBSERVATION SHEET	DATE:

OBSERVER(S):

TIME	LOCATION	ELEVATION	WIND DIRECTION	WIND SPEED/ (GUSTS)	APPROXIMATE ALTITUDE/ ELEVATION OF SMOKE / INVERSION LAYER ABOVE GROUND	OTHER OBSERVATIONS (VISIBILITY, VOLUME, COLOR, PLUME TYPE, INVERSION STATUS, VISIBILITY TO SIGHTED DISTANCE, SMOKE SENSITIVE AREAS)

SMOKE SENSITIVE AREAS:

FORECASTED TRANSPORT WINDS:

HAINES INDEX:

COLUMN FORMATION TYPES 1-7 LEFT TO RIGHT.